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TELEPHONY

CONVENTION REPORT ISSUE

The Journal of the Telephone Industry

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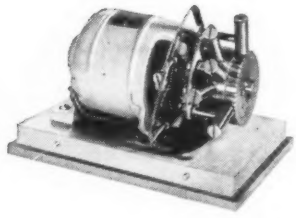
HOLTZER CABOT

Builders of Dependable Telephone Ringing Equipment for Three-Quarters of a Century

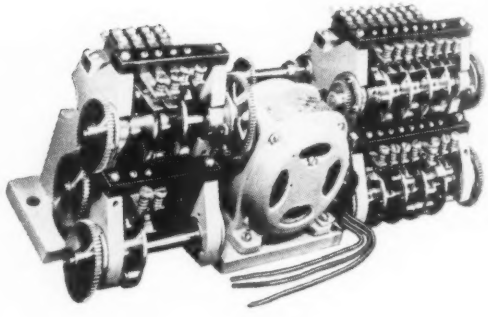
☆ SINGLE FREQUENCY RINGING MACHINES

These machines are available in the magneto type, or as dynamotor, inverted rotary converter or motor generator sets. Usually they are of 19 cycle ringing current. Speed control can be furnished, as well as tone and interrupter equipment.



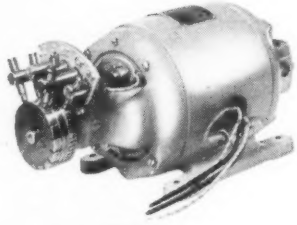
☆ INTERRUPTERS

In addition to many standard model interrupters, Holtzer-Cabot can provide a variety of specials. The special model shown here has four banks of interrupters that can all be operated at the same speed, or at four different speeds, with a total of 26 circuits in a space only 16 x 6 x 6 inches.



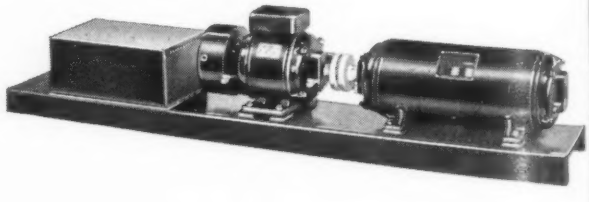
☆ TONE COMMUTATORS

Separately driven units are supplied . . . also combination sets with ringing machines or interrupters. Either one or two tones, depending on method of connection, are available, as well as multiple brushes on each tone. At 1200 r.p.m. the tones are 160 and 480 i.p.s.



☆ MULTI-FREQUENCY RINGING MACHINES

Can be furnished for harmonic, or synchromonic ringing in 25, 50, 100 or 150 watts output. Generators are designed with a small percentage of high frequency overtone on each frequency which provides a ring-back tone without other auxiliary equipment. Frequencies are held to ± ½ per cent. Either A.C. or D.C. motor drives are available.



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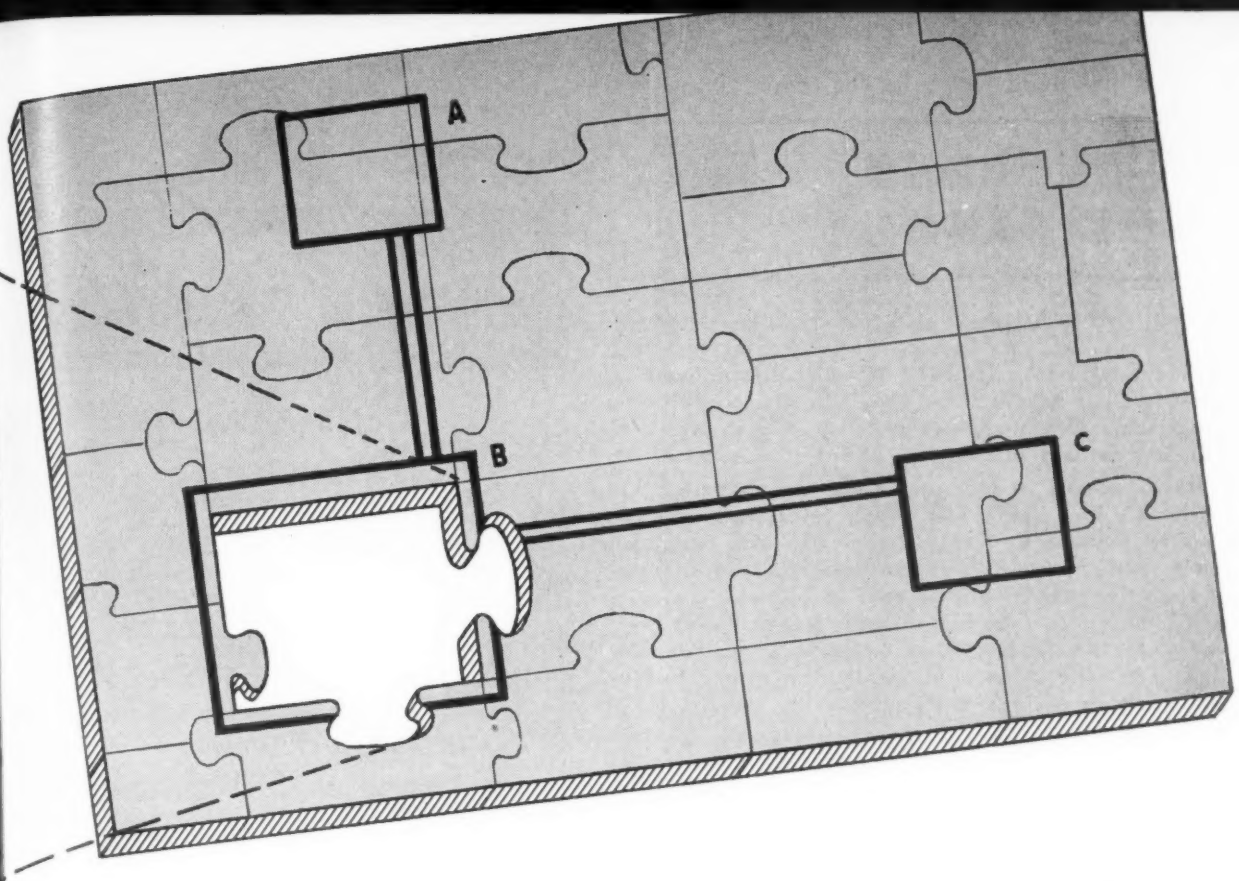

olve Transmission Puzzles

—KELLOGG REPEATER

A Kellogg Repeater fits in nicely as the ideal, low-cost solution to many a circuit "puzzle," when transmission level is "below commercial."

In the above illustration, for example, the operating company had 40 miles of #12 BB iron wire between exchanges "A" and "B", and 25 miles of #12 BB iron wire between "B" and "C". Changing traffic conditions called for a direct through circuit from "A" to "C". The existing wire facilities did not provide acceptable transmission, since the loss was 20 db, and commercial standards call for a 6 db circuit.

One suggested solution was the replacement of the iron wire with .104 copper wire. This would have provided a 4.5 db circuit, but present-day wire and construction costs would have ranged from $12,000 to $18,000.

The "fitting" solution came with the installation of a Kellogg Repeater at "B". It provided a minimum usable gain of 14 db which resulted in a 6 db circuit . . . under all ordinary weather conditions . . . *and at less than 5%* of what it would have cost to replace the wire.

SEND THE COUPON TODAY!

Kellogg Switchboard and Supply Company
6650 So. Cicero Ave., Chicago 38, Ill.

Please send your Repeater Booklet to:

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

FLASHES AND PLUGS

TALE OF A TELEPHONE HABIT. "I will call you back in about 20 minutes," has been a stock phrase in the long distance operating room for a long time, and someone became interested recently in finding out why it was 20—and not 15 minutes or 30.

The story goes back to 40 years ago when studies were made by the Bell System's long lines traffic people in toll offices in the east and midwest. Statistics were gathered on what happened when operators called back on "don't answer" numbers at intervals ranging from five minutes to half an hour. When the results were tallied, 20 minutes had the best all-around score. Of course, longer intervals gave people more time to get back to their telephones, but longer waits made more callers think they had to remind the long distance operator to try again.

Traffic experts still find the 20-minute wait gets the best results—more calls completed and fewer subscribers who think they've been forgotten. Seems that this is one telephone habit that hasn't changed.

• • •

SECRET INFORMATION. A party line telephone can be a big help in answering radio quizzes, Mrs. Mary Holman of Hampton, N. H., recently discovered. A local radio quizmaster telephoned to ask her the $10 question: "Who was the first chief justice of the United States?"

She started to answer, "John —." There was a click and a whispered "Jay." Mrs. Holman won the $10.

Later, she said, she split it with her well-informed and inquisitive neighbor.

• • •

FIRE, FIRE EVERYWHERE. A Los Angeles, Calif., man looked through his kitchen window one day, saw his car on fire and put in a rush call for firemen. He aided the fire fighters, went back to the kitchen and telephoned them again—his sizzling steaks had set the kitchen blazing.

• • •

SERIOUS BUSINESS. Wolverton Common in England, one of five Hampshire villages urgently needing a telephone booth, got one after the villages drew lots.

• • •

PARTY-LINE SERVICE. A party line got credit for an assist in putting out a farm fire seven miles southeast of Minot, N. D., recently.

Oscar Melhus telephoned the fire department when sparks from a rubbish fire started a blaze in his granary. Neighbors, who apparently heard the call on the party line, already had formed a bucket brigade to fight the blaze before fire trucks arrived.

• • •

COLLECTOR—BUT HE DIDN'T PAY. A Detroit, Mich., city tax collector, employed by the office which collects money from parking meters, was suspended from his job recently on a charge of putting slugs in them. The suspect, who admitted using slugs in a meter near the city hall, said he makes 15 or 20 stops a day on city business and is not reimbursed for meter fees. He is a personal property tax collector.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

October 22, 1949

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FEDERAL LEGISLATION HOLDS *Interest at USITA Meeting*

By R. C. RENO

TWO pieces of federal legislation which may have far-reaching effect upon the successful operation of the telephone business as a private enterprise, if the industry fails to take steps to protect itself, were perhaps the major points of interest and discussion at the 52nd annual convention of the United States Independent Telephone Association, held Oct. 10, 11, 12 and 13 at the Stevens Hotel, Chicago.

The first of these federal bills is the highly controversial Rural Telephone Bill which was in congressional conference committee during the convention and which in all probability will be enacted into law by the time this issue reaches the field. **(See page 86 for "flash" on conference report.)** This bill provides for government loans, through the REA, to telephone companies, cooperatives or other non-profit associations, at 2 per cent interest for 35 years, for the purpose of financing, refinancing, improvement, expansion, construction, acquisition and operation of telephone systems to furnish an improved service to rural areas.

As a result of testimony in the senate committee hearings on the bill, the industry succeeded, in securing several amendments which will protect telephone companies against government financed competition and interference, partly eliminating a definite socialistic flavor from the house bill and the original senate bill. (See *In the Nation's Capital* on page 9 of the Oct. 15 issue for full details of amendments to the senate bill).

Even though the industry was successful in getting these protective amendments in the senate bill, if that bill is finally enacted there could still remain ample possibility for government entrance and further interference in the telephone business through (1) loose administration of the law; (2) disregard for congressional intent by some future administrator; (3) future attempts to amend the law and (4) loosely drawn and "dictatorial" loan agreements permitting the REA to interfere with the management of telephone companies. It was the consensus of those whom this reporter interviewed at the USITA convention that the industry must "keep a sharp eye to the future" to see that its interests are not jeopardized by government encroachment through any maladministration of the rural telephone law, or through future amendments, if it passed.

The telephone industry did not seek government financial assistance in expanding rural service and opposed the rural telephone legislation. However, now that it appears the legislation might be enacted with the industry-sponsored protective amendments, industry leaders are in agreement that the fullest cooperation will be given the REA in establishing a procedure whereby telephone companies can obtain financial aid under the law, without sacrificing any of their managerial independence and rights under the private enterprise system.

THANKS, MR. BLAIN

As in the past, we are indebted to Ray Blain, our technical editor, for taking the photographs which make up the pictorial record of the USITA convention presented in this issue.

Mr. Blain, as usual, worked almost "'round the clock" during the convention so that we could include them in this issue. In order to speed up this special number, he again equipped the bathroom of his hotel room as a "dark room" and developed his pictures "on the spot."

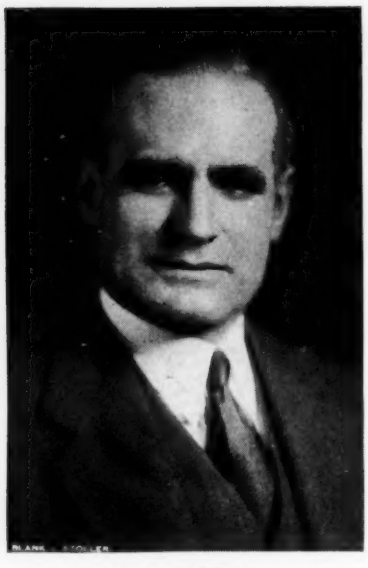
The other piece of federal legislation holding interest at the USITA convention was the amendment to the wage-hour law increasing the minimum wage to 75 cents an hour and increasing the telephone operator exemption to cover companies with 750 stations and less, instead of the former 500-station limit.

It was recommended at the convention that all companies affected by the increased minimum wage rate immediately petition their state regulatory commissions for higher rates to cover the increased payroll expense resulting from the application of the 75-cent minimum wage rate.

The cooperation of state commissions in adopting speedy and streamlined procedures to handle emergency rate increases necessitated by the increased wage rate, so that the financial condition of telephone companies will not be unduly jeopardized, was urged at the convention. If the usual slow and cumbersome rate hearing procedures of most commissions are followed in these emergency rate increase cases, irreparable damage to telephone companies and service could result, it was pointed out by many attending the convention.

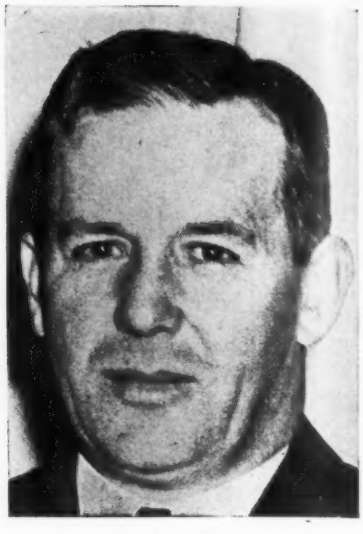
Commissions must not lose sight of the fact that many telephone companies just do not have sufficient revenue to pay the higher wage rates under present tariffs and it is imperative that the commissions gear their operations to be able to grant immediate relief to such companies, it was brought out.

Deep concern over the ever-growing threat to the free enterprise system by the growing trend toward greater centralized government powers and the encroachment of the government upon private business and the freedom of the American people was voiced by speakers at the convention and by many attending the meeting. Many expressed the opinion that the time has come for industry, labor and other segments of

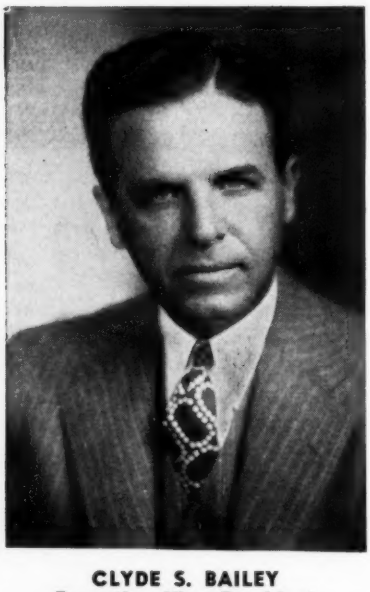


H. V. BOZELL
President

F. E. BOHN
First Vice President



RAY DALTON
Second Vice President



CLYDE S. BAILEY
Executive Vice President

CARL D. BROREIN
Treasurer

GEORGE C. RICHERT
Secretary

our economy to take immediate steps to stop the leftist trend in the federal government which has been running almost unabated in the country for several years.

This thought was brought out in addresses by Judson Large, Chicago, Ill., president of Central Telephone Co., who spoke on "Federal Taxes" and by Harold G. Hoffman, former governor of New Jersey, whose subject was "Government and Business—Gripes and Grins."

Speaking of the effect of increasing federal taxes upon our economy, Mr. Large said:

"Taxes are so high that they jeopardize the American way of life, but those who pay the government's big bills are not complaining enough in the right places.

"If taxpayers applied sufficient pressure on their legislators in Washington, there would be a better chance of relieving the heavy tax burden.

"Moreover, the Washington spenders would be deprived of funds with which they conduct experiments in socialism."

Mr. Large said the "discriminatory" excise tax on communications services, which last year produced more than a half a billion dollars in revenue, will increase the difficulty of earning an adequate return on funds being invested in new telephone equipment.

"In a free country," he said, "there is much complaining but little actual suffering. Under a despotism there is much suffering but no complaining. I'm afraid we'll have despotism in this country if we don't complain enough to bring about a reduction in taxation and government spending."

Mr. Large said the system of double taxation, under which the government takes a share of a corporation's profits and then taxes the profits again when the shareholder receives a dividend, is drying up sources of equity capital.

The officers of the association—particularly Executive Vice President Bailey—deserve the commendation of the Independent industry for the outstanding programs of the general convention sessions. The committee which planned the special conferences—traffic, plant commercial and accounting—are to be congratulated for their quality programs. All sessions and conferences were well attended and convention delegates showed unusual interest in the papers presented, which gave many practical solutions to problems confronting both large and small telephone companies.

USITA Secretary George Richert and Assistant Secretary Leola Fitzwater also received the plaudits of those attending the convention for their

NEW USITA OFFICERS

President
H. V. BOZELL, New York City

Executive Vice President
CLYDE S. BAILEY, Washington, D. C.

First Vice President
FRANK E. BOHN, Fort Wayne, Ind.

Second Vice President
RAY DALTON, Everett, Wash.

Treasurer
CARL D. BROREIN, Tampa, Fla.

Secretary-Assistant Treasurer
GEORGE C. RICHERT, Washington, D. C.

Assistant Secretary
MRS. LEOLA FITZWATER, Washington, D. C.

Three real Independent telephone pioneers. Left to right: H. D. FARGO, TELEPHONY, J. H. WRIGHT, Jamestown, N. Y., and E. B. OBERSHINER, long-time president of the old American Swedish Telephone Co.

efficient handling of the day-to-day details of the four-day meeting.

The displays of new equipment and new techniques by the manufacturers and suppliers formed a vital part of the convention. The exhibits again took up the entire fifth floor of the Stevens Hotel and the throngs which visited the manufacturers' rooms bore evidence that no convention would be as complete and successful if the manufacturers were not there to give operating men information concerning the latest and most up-to-date apparatus.

With the adoption of new developments by the operating industry, such as radio telephony, carrier, nationwide toll dialing, automatic toll ticketing, etc., the industry must and does depend more and more upon the manufacturers for advice and help and they are always prepared to give it at the national convention.

The convention re-elected the following directors: E. G. Bellamy, Knoxville, Iowa; F. E. Bohn, Ft. Wayne, Ind.; H. V. Bozell, New York City; Carl D. Brorein, Tampa, Fla.; Ray Dalton, Everett, Wash.; H. E. Hageman, Lorain, Ohio; Alden L. Hart, Kansas City, Mo.; C. D. Manning, Chicago, Ill.; C. C. Pearce, Riceville, Iowa; R. E. Shotts, Chicago, and R. B. Still, Bloomington, Ill.

USITA EXECUTIVE COMMITTEE

H. V. BOZELL, New York City, Chairman.
F. S. BARNES, Rock Hill, S. C.
W. B. CLAY, Hutchinson, Minn.
ALDEN L. HART, Kansas City, Mo.
W. C. HENRY, Bellevue, Ohio
L. W. HILL, Tarboro, N. C.
JUDSON LARGE, Chicago, Ill.
R. A. LUMPKIN, Mattoon, Ill.
C. D. MANNING, Chicago, Ill.
R. E. SHOTTS, Chicago, Ill.
R. W. SIEMUND, Chicago, Ill.

NEW USITA DIRECTORS

Re-elected

E. G. BELLAMY, Knoxville, Iowa
F. E. BOHN, Ft. Wayne, Ind.
H. V. BOZELL, New York City
CARL D. BROREIN, Tampa, Fla.
RAY DALTON, Everett, Wash.
H. E. HAGEMAN, Lorain, Ohio
ALDEN L. HART, Kansas City, Mo.
C. D. MANNING, Chicago, Ill.
C. C. PEARCE, Riceville, Iowa
R. E. SHOTTS, Chicago, Ill.
R. B. STILL, Bloomington, Ill.

Elected

D. O. HOOD, Medford, Ore., for unexpired term of A. N. John, deceased.
JUDSON LARGE, Chicago, Ill., for unexpired term of R. A. Phillips, deceased.
R. K. McBERTY, Galion, Ohio, for unexpired term of F. R. McBerty, resigned.
R. C. TAIT, Rochester, N. Y., to succeed W. M. Angle, resigned.
H. H. WHEELER, Lincoln, Neb., for unexpired term of B. I. Noble, resigned.

The following also were elected directors: Robert C. Tait, Rochester, N. Y., to succeed W. M. Angle, resigned; D. O. Hood, Medford, Ore., to fill the unexpired term of A. N. John's, deceased; H. H. Wheeler, Lincoln, Neb., to fill the unexpired term of B. I. Noble, resigned; R. K. McBerty, Galion, Ohio, to fill the unexpired term of F. R. McBerty, resigned, and Judson Large, Chicago, to fill the unexpired term of R. A. Phillips, deceased.

The directors elected the following officers: President, Mr. Bozell; first vice president, Mr. Bohn; second vice president, Mr. Dalton; executive vice president, Clyde S. Bailey, Washington, D. C.; treasurer, Mr. Brorein; secretary-assistant treasurer, George C. Richert, Washington, D. C., and assistant secretary, Mrs. Leola Fitzwater, Washington, D. C.

The executive committee of the association is composed of the following: Mr. Bozell, chairman; F. S. Barnes, Rock Hill, S. C.; W. B. Clay, Hutchinson, Minn.; Mr. Hart; W. C. Henry, Bellevue, Ohio; L. W. Hill, Tarboro, N. C.; Judson Large, Chicago; R. A. Lumpkin, Mattoon, Ill.; Mr. Manning; R. E. Shotts, Chicago, and R. W. Siemund, Chicago.

The plant, traffic, commercial and accounting conferences were presided over by the chairmen of those committees as follows: G. W. Miller, Rochester, N. Y.; C. C. Donley, Lincoln, Neb.; Ralph Van Trine, Durham, N. C., and H. C. White, Jamestown, N. Y.

As in past years TELEPHONY, in this issue, presents the addresses made at the general convention sessions and conferences, with the exception of those by Judson Large, Harold G. Hoffman (covered heretofore) and W. F. Corman on "Continuing Property Records for Class C and D Companies," which will be published in full in future issues of this publication. All of these addresses are being reproduced on the following pages for the benefit of those who were unable to attend the USITA convention.

The Plant Man's Notebook

For those who are wondering if TELEPHONY, in this issue, has completely deserted from its policy of publishing some of the regular departments, we would like to take this opportunity of saying that the highly informative Plant Man's Notebook, conducted by our technical editor, Ray Blain, can be found on page 72.

INDUSTRY'S RESPONSIBILITIES

By FRANK S. BARNES
USITA President

I AM very happy to be here and to welcome all of you on this occasion. I want to express to you my gratitude and sincere appreciation for the honor and privilege of serving during this past year as president of an organization composed of such fine, loyal and wonderful people. There is no greater nation on earth than the United States, and there are no finer people in this nation than telephone people. I am indeed proud to be a part of this group.

We have just opened this general session with an invocation seeking God's blessing upon our undertaking. We should all be happy that we are engaged in rendering such a vital and useful service as telephone service, a work in which we can ask God's blessing.

The past year has been a busy one. All of us would have been fully occupied during the past year with the work necessary to the serving of our subscribers and the expansion of telephone facilities to serve those on the waiting list; but in addition to this work, shortly after the beginning of the year, legislation was proposed that would vitally affect the communications industry. It became necessary to ask many of you to do the additional work of informing members of the United States Congress as to the effect the proposed legislation would have upon our business. To all of you who have participated in this work, I wish to express gratitude for myself and for all others in our industry.

I would like to pay tribute to Executive Vice President Bailey and to his efficient and hard-working staff in Washington for their diligent efforts and effective work. I would like also to pay tribute to and express gratitude for the work done by all of the association committees during the year. Particularly, I wish to pay tribute to members of the Employment Relations Committee and to members of the Problems of Small Companies Committee, for these two committees have had an unusually large amount of work to do. I also wish to express gratitude to all those who, from time to time, have assisted in the work of the association.

Immediately after World War II, the task of the telephone industry seemed to be the connecting of the applicants which were then on the waiting lists. Additional plant facilities, available manpower, surplus war materials were all devoted to this purpose. Rapid additions were made; but in spite of a growth that exceeded all previous growth, demands for telephone service continued to pile up. The increased local and long distance calls due to the increased number of telephones and the use of telephone communications to adjust from war efforts to peacetime activities overloaded the switchboards and the toll lines. Serious delays and congestion in traffic resulted.

Great strides have been made in providing additional facilities to handle the additional service. Even though there has been an increase of more than 10,000,000 telephones since V-J

F. S. BARNES

day, there are still on the waiting lists of telephone companies more than one and one-half million people.

The switchboards and other central office facilities, as well as outside plants, of the telephone companies of this nation are being worked far beyond their maximum ability to render telephone service at all times without delay. There has been recently an easing of the supply situation in regard to some items of telephone equipment, but it appears there will be considerable time before normal conditions will be restored in the telephone industry as a whole.

Telephone rates that were established on prices, wages and normal plant margins during the period before World War II will not be adequate to meet the cost of rendering telephone service on today's prices and wages and when normal plant margin is restored. Adequate earnings are necessary to render adequate telephone service. Many telephone companies have secured rate increases in the past four years. If your rates will not pay today's costs of operation and provide adequate earnings, let me urge you to get them adjusted.

It is only natural as additional plant, at today's prices, is installed that increased rates will be needed. Our trade magazines have printed articles from time to time explaining the necessity for adequate rates. Adequate rates are needed in order to have adequate earnings to obtain the necessary capital for plant improvements and expansion and to obtain efficient and competent personnel to render the service desired in the communities in which we operate.

No telephone company can make a greater error than to permit itself to become financially crippled because of inadequate revenue due to insufficient rates.

President Roosevelt, in July, 1938, said, "The south represents, right now, the nation's No. 1 economic problem." I come from that section, but I would like to say that I am now relieved, because in listening to a great number of well-informed people in various walks of life throughout the country, it seems to me that they are thinking that the nation's real economic problem No. 1 is not in the south, not in the north, not in the east, not in the west, but in Washington, D. C.

Shortly after the inauguration of President Truman in January, the House Labor Committee began hearings for the purpose of amending the Fair Labor Standards Act. It considered a proposed bill which, among other things, would have eliminated the exemption of switchboard operators in exchanges of less than 500 stations and would have established a minimum of 75 cents an hour, with a provision that it be raised to $1.00 an hour on an industry-wide basis by an order of the Secretary of Labor.

The Independent telephone industry was ably represented by the Employment Relations Committee and others who went to Washington to assist. This presentation explained before house and senate committees that the position of the telephone industry was that wages should be on the same level as like wages in the communities in which the exchanges are located. It was pointed out that the industry could not make its welfare dependent upon the payment of low wages, neither could it adequately serve the community if it were necessary to charge rates to

pay wages that were far in excess of the prevailing wages of that community. It was further pointed out that it was impossible for exchanges of less than 500 stations to meet the requirements of the Wage-Hour Law in the payment of operator wages and that should the minimum be raised above 40 cents, it would even be necessary to exempt operators in exchanges up to 1,000 stations.

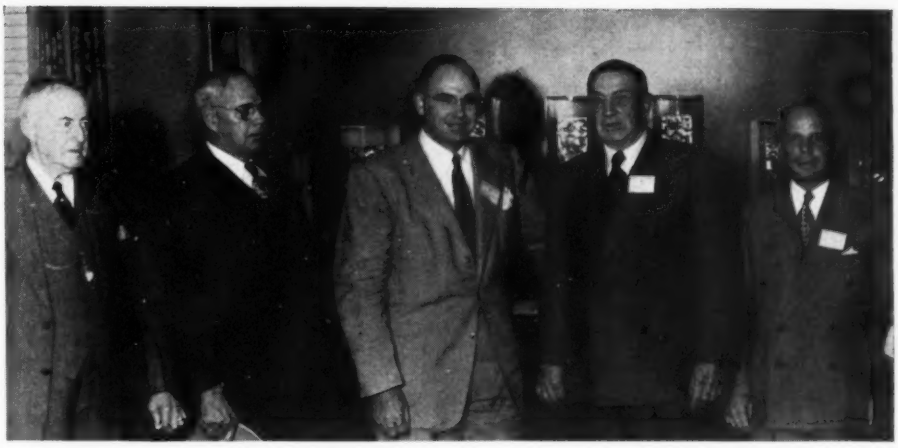
There is an excise tax of 15 per cent upon local telephone service and an excise tax of 25 per cent upon long distance calls. These taxes were placed as a defense and war emergency revenue measure. Hostilities ceased in August, 1945, but the taxes are still retained and used to pay increasing demand for social benefits from our government.

The federal income tax on corporations is 21 per cent on the first $5,000 of taxable income; 23 per cent on the next $15,000; 25 per cent on the next $5,000; 53 per cent on the next $25,000; and 38 per cent on all amounts above $50,000.

The heavy excise tax together with heavy income taxation increases the amount paid by telephone subscribers for telephone service, and so reduces the amount available to the investor as to make it difficult to secure equity capital to expand telephone service.

Notwithstanding the fact that telephone service, including rural telephone service, is classed with luxuries for excise tax purposes, bills were introduced in the Congress of the United States declaring telephone service in rural areas a national problem.

These bills provided for loans at 2 per cent per annum, amortized over a period of 35 years "for the purpose of financing or re-financing the improvement, expansion, *construction, acquisition* and operation of telephone lines, facilities or systems to furnish and improve telephone service in rural areas;" and preference in making loans shall be given "to persons providing telephone service in rural areas, and to public bodies, cooperative, nonprofit, limited dividend or mutual associations."



Left to right: W. J. KINDER, New Castle, Pa.; C. M. SELLS and H. F. LELLO, Automatic Electric Sales Corp.; B. E. HART, Sacramento, Calif., and C. S. CADWELL, Automatic Electric Co.

Left to right: M. A. BYRD and F. M. PARSONS, both of Kellogg Switchboard & Supply Co.; C. J. CRAIG, General Insulated Wire Works, Inc.; C. E. BROWN and T. R. SCHWEER, both of Kellogg company.

The position of the association was ably presented. It was stated that the rural telephone problem is not a national problem. Telephone service is now available without construction charges, to the subscriber, to 85 per cent of the occupied farms of the United States. It is a problem at the most, in not more than 15 per cent of the total rural area of this country.

It is confusing to compare telephone service with electric service. Telephone service is desired on a community basis, and lines must connect with the center of communications. Telephone service is of value because it gives connections with other telephones located in places to which communication is desired. The value of telephone service increases as the number of telephones available for connection increases.

The value of electric service, on the other hand, is dependent upon the use which is made of it at the particular location where it is available. Lines must connect with the source of power, and this is not the same as the center of communications. It is a metered service. Its value is in the providing of lights and the furnishing of power for refrigeration, radio and the operation of other equipment and conveniences.

Rural telephone service is not a one-way street. It has its value to the rural subscriber; and it has its value to other subscribers in the calls it enables them to make. The problem of rendering rural telephone service varies with the size of the exchange. In larger exchanges, a greater portion of the cost can be borne by the urban and business subscribers. In the smaller exchanges, more of the cost

(Please turn to page 89)

Left to right: H. A. WHITE, Leich Sales Corp.; E. M. BLAKESLEE, Santa Monica, Calif.; R. W. SIEMUND, Leich Sales Corp.; KELLEY McNISH, Bristol, Tenn., and C. A. SWEET, Leich Sales Corp.

REPORT ON USITA ACTIVITIES

By CLYDE S. BAILEY
USITA Executive Vice President

THE 12 months that have elapsed since our last convention have been ones rich in experience. It has been a rare privilege to those of us in Washington to represent you in one of the hot spots of the nation.

When I say "hot spots," I do not mean merely warm. Statistically and actually, the past summer was the hottest in the history of our fair city. The uninterrupted, continuous presence of Congress in our town since Jan. 3 adversely affected a climate already bad. In broad outline I am going to expand upon that theme before I finish.

For a few moments, however, I first want to report to you upon the affairs of your association. The financial condition of your organization is good. Although general economic conditions and increased responsibilities have caused our expenses to increase, the organization is on a sound basis financially. Representing between 80 and 90 per cent of the total Independent segment of the telephone industry in terms of stations in service, the association is still growing. We like to think that its usefulness to the industry is keeping pace.

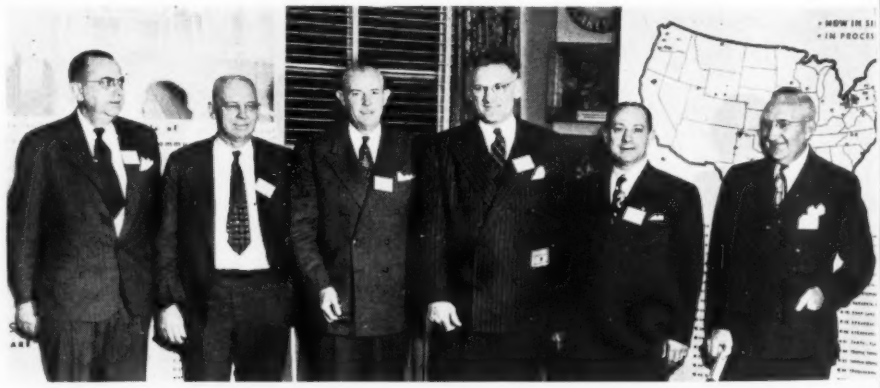
Its committees under specification of duties made annually by our Executive Committee are functioning efficiently. From them your association officers have received the utmost in cooperation. Without them we would have been severely handicapped.

I would feel remiss if on this occasion I failed to tell you that our unexcelled industry magazines, TELEPHONY and Telephone Engineer, have continued to perform an exceedingly useful mission. To their editors, Pete Reno and Ray Smith, as well as to their genial associates, we say: "Fine, gentlemen; keep up the good work." In saying this we would also like to include Francix X. Welch and Roland Davies, both of whom in their factual and analytical columns are making valuable contributions to the industry by interpreting current events on the communications front.

Our relations with the Bell System are cordial. There may have been a time when there were certain rivalries existing between the two branches of the industry. They are hardly any longer seriously discussed. Gentlemen always have ways of getting along with each other. Telephone men are gentlemen. When problems arise affecting the interests of one or both branches of the industry, they are ironed out amicably across the conference table.

We have much appreciated the cooperation of the 33 state telephone associations during the past year. These are important groups. They are close to their members and familiar with local conditions. They are deserving of the support of every company in their respective states. The opportunities for service in the state groups to the small exchanges are so great that, even at the risk of perhaps speaking outside of my own domain, I would like to express the hope that more of the associations were able to find ways of affording full time secretaries. At present, only 9 or 10 have full time executive staffs. Much additional good would flow from full time staffs in other states. . . .

Before coming to certain general matters which seem worthy of considering at this annual meeting I would like to speak of several specific subjects.



Left to right: J. R. THOMPSON, Stromberg-Carlson Co.; R. V. ACHATZ, Aurora, Ind.; T. C. THOMPSON, Stromberg-Carlson; K. B. SCHOTTE, Kittanning, Pa.; W. J. PFAENDER and A. F. GIBSON, both of Stromberg-Carlson.

Toll Compensation Studies

Our Toll Compensation and Settlements Committee, being ever mindful of the interests of Independent telephone companies, has had an active 12 months. It has devised a set of forms and instructions for making cost studies in conformity with the principles contained in the Separations Manual published in 1947 by the NARUC-FCC Special Cooperative Committee on Telephone Regulatory Problems. The purpose of this work has been to make available to the industry a ready means of determining the cost of handling toll business by those Independent companies which because of unusual traffic conditions or other circumstances have reason to believe that the presently effective average cents-per-message basis of settlement is inapplicable to their particular situation.

Pursuant to authority given the committee by our board of directors last April, the most recent draft of the procedure and forms has been presented to representatives of the Bell System for their study and comment. The committee is hopeful, as I am and as I know you are too, that the end result will be a procedure having the general acceptance of both the Bell and Independent segments of the industry.

Radio Service Committee

Radio continues to hold a commanding place in the minds of all forward thinking telephone people. Progress is being made. Since our Executives' Conference last April, the Federal Communications Committee has issued its frequency allocation order and final rules and regulations pertinent thereto. These were summarized in a report by our radio committee that was published in the trade journals.

A new and important possibility has opened up to our industry in hearings now taking place. This arises out of action by the FCC in Docket 8976 permitting the telephone industry to present evidence on the question whether there should be an allocation of the band of 470-500 mc to multi-channel broad band common carrier mobile radio operation.

If this allocation is made, an opportunity will be afforded our industry for adapting radio to telephone operations for point-to-point toll and rural services, as well as mobile services. Your association in cooperation with its Radio Service Committee has petitioned the FCC to allocate these frequencies to the telephone industry.

Revised Learner Regulations

The prospect that we shall soon

face a staggering increase in the minimum wage to 75 cents focuses attention upon the early need for giving consideration to a revision of the learner regulations which the wage-hour administrator is authorized to issue under the terms of the Fair Labor Standards Act. The law in section 14 provides that:

"The administrator, to the extent necessary in order to prevent curtailment of opportunities for employment, shall by regulations or by orders provide for the employemnt of learners . . . under special certificates at such wages lower than the minimum wage . . . and subject to such limitations as to time, number, proportion, and length of service as the administrator shall prescribe."

This is a matter of interest not only to the exchanges having more than 500 stations but to those approaching that figure. Our existing exemption, of course, excepts from the application of the law switchboard operators employed at public telephone exchanges having less than 500 stations.

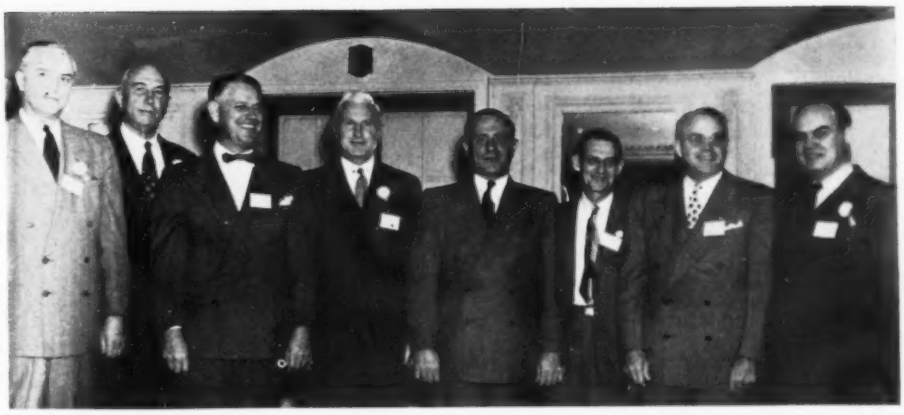
The existing regulations were promulgated in July, 1944, following hearings held six months earlier in a formal proceeding instituted by our association. As issued, they have been the subject of considerable criticism from time to time within our industry. No certificates under them have been issued for some months, largely owing to the expectation that new minimum wage legislation would be enacted before long.

Your association is filing a petition with Wage-Hour Administrator McComb asking for an early hearing upon the needed revisions so that the new regulations may become effective coincidentally with the effective date of the new minimum.

"White-Collar" Definitions

Last month the wage-hour administrator announced proposed new tests to determine when executive, administrative, and professional employes shall be considered exempt from the wage and hour provisions of the Wage-Hourt Act. Some of these proposals will be certain to affect a number of our smaller exchanges in a serious way.

The salary necessary for exemption of an executive type of employe under the proposed new regulations would be increased from $30 to $55 a week; that of administrative and professional employes from $200 a month to $75 a week. These are very substantial increases which may operate to bring within the coverage of the overtime provisions of the law a number of persons employed in our branch of the industry now exempt. Still other changes in tests determining exemption status would be made. . . .



Left to right: R. S. PERRY, Federal Telephone & Radio Corp.; R. A. GANTT, International Telephone & Telegraph Corp.; F. E. NORRIS, New York City; W. H. HARRISON, Federal Telephone & Radio Corp.; B. W. SAUNDERS, Springfield, Ill.; R. W. ENGSBERG, Federal; L. F. SHEPHERD, Lafayette, Ind., and L. J. DENNEY, Federal.

FCC Activities

The interests of telephone companies in the radio spectrum so far as mobile radio-telephone service is concerned are being dealt with by our alert Radio Service Committee, as I mentioned earlier. Although most of the activities of the FCC relate to the radio broadcasting industry, common carriers are by no means a federal regulatory step-child.

There are two formal cases now pending before this federal body that involve those salutary, necessary foreign attachment provisions the presence of which has done so much to assure the development and preservation of good telephone service. One of these proceedings relates to the proposed use of a Hush-a-Phone. . . .

The other case relates to the use of the Telemagnet, an automatic answering device that lifts the telephone receiver upon the second ring of the telephone with which it is associated and simultaneously operates certain recording equipment which transmits a previously recorded message to the calling party and records the calling party's message. . . .

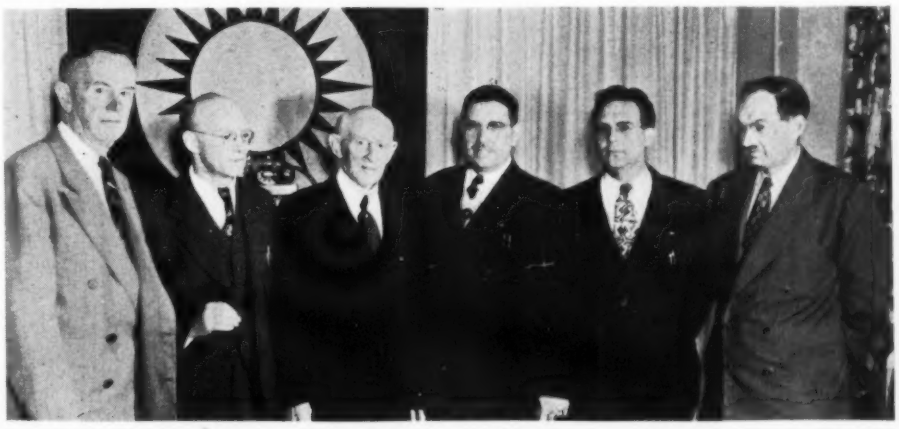
The manufacturers of these devices and counsel representing them are resourceful in pointing to claimed advantages of their use. Our association as well as the Bell System has interested itself in these proceedings and intends to participate in the hearings. There are two important questions involved: (1) Does the FCC have jurisdiction in view of the fact that the telephone instruments are used predominantly in local exchange service?; and (2) even assuming it has jurisdiction, should it exercise it in such a way as to open the door to a flood of gadgets produced or marketed by non-telephone people at the expense of efficient telephone service?

NARUC-FCC Toll Rate Studies

For several years the NARUC has had a Special Committee on Cooperation with the FCC in Studies of Telephone Regulatory Problems.

One of the matters currently receiving the attention of this group is that of claimed disparities between interstate and intrastate toll rates, principally the short-haul rates. When passing a resolution upon this subject at its 1948 convention the NARUC emphasized the "continued and additional" urgency of this problem.

Last March, when the technical staff subcommittee of the main committee met in Washington for preliminary exploration of the subject, it extended an invitation to our association to participate in the making of studies, and



Left to right: WILL PARKER, R. K. McBERTY, F. R. McBERTY, G. A. BERTING, R. B. WISEMAN, and ERIC BROOKE, all of North Electric Mfg. Co.

it also invited the Bell System. These invitations were accepted. The cooperation of our association is being extended through its Toll Compensation and Settlements Committee. . . .

Tax Committee

The Tax Committee of our association has as usual been alert to what is taking place in tax discussions and tax proposals. But inasmuch as no tax legislation has been under active consideration by any committee in Congress, it has confined its activities to informal discussions with others interested in tax questions. As occasion has arisen our committee has also conferred with individual members of Congress. . . .

The committee has advised the Telephone Advertising Institute as to advertisements and billing inserts relating particularly to the question of excise taxes, but also giving reference to corporate taxes.

Our Tax Committee continues to present the program of elimination of excise taxes and elimination of double taxation on corporate profits. . . .

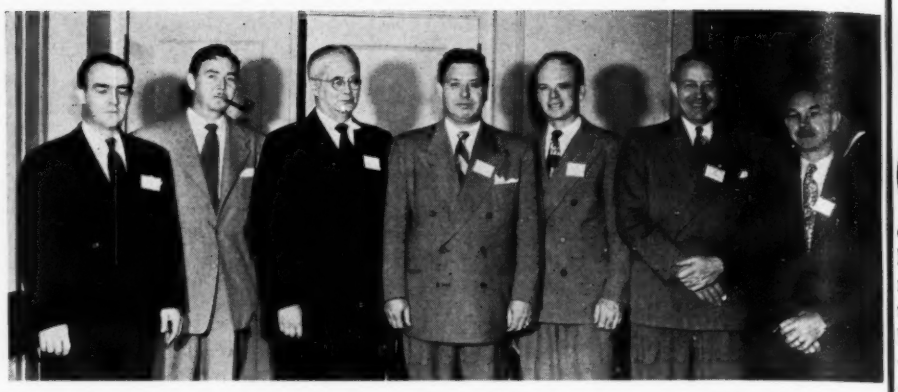
Service Going Forward

In the telephone industry the concept of service was long ago enthroned as king. A chief executive of the nation once remarked that in a broader sense service is the supreme commitment of life itself. We all know that that service has many facets. It is a help rendered to others willingly, efficiently and with good manners. Service with a smile is much more than service alone. A smile is not the equivalent of service, but it will sometimes make it easier for the subscriber to put up with bad service. . . .

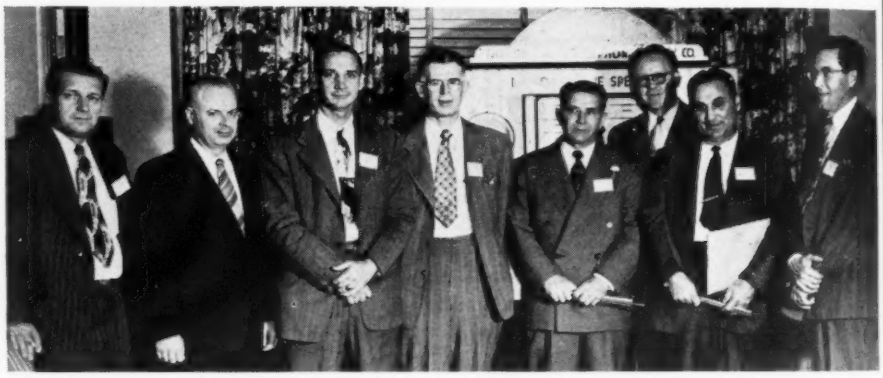
We are an industry in which a service obligation to the public precludes malice toward none. We are an industry in which satisfaction with a job well done is repressed by constant recognition that the job is never entirely completed.

In 1940, Independent telephone companies were serving 4,316,000 stations. The Bell System had 17,484,000. On Jan. 1, 1949, the Independents had 6,841,000 and the Bell System 31,264,000, or a total for the nation of 38,205,000. This is almost 60 per cent of all the telephones in the world. The industry on yesterday (Oct. 11) reached the remarkable total of 40,000,000 telephones.

Total Independent investment has increased from $725,000,000 in 1942 to $981,000,000 today. Bell System investment has increased since that year from $4,747,674,000 to $8,619,000,000. Operating in the larger communities of the country, it is natural that the per cent of increase in both figures should be greater for the Bell System. In both branches of the business expansion is still going forward with vigor.



Left to right: G. E. DEMACK, LELAND J. MAST, FRANK DAVIES, E. M. MORNINGSTAR, E. T. JORDAN, C. V. HAMMER, and D. E. LeMASTER, all of General Telephone Directory Co.



Left to right: G. E. VOYLES, L. H. BURNS, both of National Telephone Supply Co.; W. A. PANKEY, Pankey Supply Co.; J. J. BURKE, National Carbon Co.; F. E. MILLER, Springfield, Ill.; A. B. COOK and J. P. PROUT, both of Elyria, Ohio, and JOHN E. WINCHESTER, National Telephone Supply Co.

Commissions and New Minimum Wage

Regulatory commissions on the whole have shown a realistic understanding of the fact that adequate earnings are essential to attract new capital for necessary improvement and expansion. There have been, however, some noteworthy examples of delays, delays that have been embarrassing to the companies concerned in going forward with improvement programs. Regulatory commissions everywhere should, of course, have an acute consciousness of the need for prompt action in individual cases.

The sometimes slow and cumbersome machinery of regulation should be examined with a view to improving its operation wherever needed. Commissions in many instances are handicapped by small appropriations and inadequate staffs. But it is feared that in some instances these are not the sole impediments to prompt and necessary action. Perhaps the statutes in individual instances are due for revision.

A speaker at the Public Utility Law Section of the American Bar Association remarked not long ago that there can be due regard for due process without the process of undue delay which can amount to a denial of justice.

Regulatory delays could prove disastrous to many of our small exchanges with the advent of the 75-cent minimum wage. We hope that commissions generally will be in a position to act expeditiously upon the unavoidable subscriber rate increases that will be asked by many Independent companies when payrolls are increased by amendments to the Wage-Hour Act expected shortly after the first of the year. . . .

Three things are required in regulatory treatment of the small telephone

(Please turn to page 89)

MILDRED METTS (left) and VIVIAN RYDEN, popular attendants of TELEPHONY's convention exhibit room.

RURAL TELEPHONE LEGISLATION

By COL. W. C. HENRY
Chairman
USITA Small Companies Committee

ON occasions such as this, when the ancient Romans gathered together from all over their empire, they paid tribute to a mythological pagan god of considerable renown, named Janus. You may recall that Janus had two faces—one looking backward, the other forward. Janus was the pagan "god of beginnings," for the Romans of old realized, just as you and I realize, that while an anniversary denotes the end of a segment of the past, so also does it mark the beginning of the future. This legend more than 2,000 years old, serves to remind us that in this nation's progress, you and I cannot afford to walk backwards, with our eyes on the past.

We have undergone some very fundamental changes in our economic structure since the Declaration of Independence emphasized that we are all created equal. We were committed, at the outset, to the doctrine of the equal start. This set of ideas was later commonly referred to as "equality of opportunity." As an evidence of this we, early in our history, supported universal, compulsory common school education.

It was deemed to be the function of the national government, even then, to create conditions favorable to this equal start. In 1862, Congress passed the Homestead Act, for example, under which any citizen could be himself and make his own living in his own way. In 1890, Congress passed the Sherman Anti-Trust Act, designed to prevent monopoly and to give any and all, who had the desire and the means and the ability, the opportunity to set up in business for themselves. Within these limits the free enterprise system developed and this country became a nation, half industrial, half agricultural.

The pain and suffering of the depression of the 1930's greatly accelerated the gradual evolution of our economic system. Our economy now is rapidly being transformed from a capitalistic to a "welfarist," "controlist," and "laborist" economy. Power is shifting to the urban masses. As recently as 1850, over half the national income came from farmers and others who were self employed. Today four out of every five gainfully occupied people are laborers working for someone else. In the early days, the outlook, the values and the customs of the capitalists, business proprietors, and farmers, set the tone of the political life of the country, unchallenged.

Today we are a nation of wage earners. While agriculture remains to a degree, a fortress of individualism and small capitalism, it has shrunk in relative importance. The universal franchise, the march of technology, and the shift of population into the great urban centers, have fostered the rise of the political power of the laboring masses. We are passing through one of the great economic transformations of our history.

Fourteen years ago when social security legislation was first recommended, there were many who loudly called it Socialism. Today such legislation is now accepted by nearly everyone. The dividing line between Statism and Individualism is a narrow one, and we are steadily marching toward it. In communistic Russia there is a completely centralized domination of economic life by the government. In England under state socialism, there is government ownership and operation of selected basic industries. Here in America there seems to be growing up the philosophy that it is the function of the government to exercise fundamental control over our economic system. These three forms of government control over a nation's economy, all lead to the same end result—the destruction of the private enterprise system as we have known it in years past. The speed with which we are traveling down that road is a matter of most serious concern to all of us.

W. C. HENRY

It is against this backdrop of federal governmental philosophy that all legislation coming before our national congress has been considered this year. In each session of Congress since 1943 bills to expand the authority of the REA to permit that agency to enter the telephone field, have been introduced. Not until this year did these bills reach the stage of committee hearings.

The policy of this association with regard to the Poage and Hill rural telephone bills was determined by the board of directors at its meeting on Mar. 15, 1945, and was reaffirmed by the board at its meeting in April of this year. That policy was, first, to do everything possible to defeat any rural telephone legislation, second if its defeat was impossible, to secure amendments which would place the administration of the legislation under the RFC, and third, to secure other necessary amendments for the proper protection of our industry. This association's Committee on Problems of Small Companies was given the assignment.

My opening remarks, outlining changes which have come about in our national thinking over the past several decades, were not made as a foundation on which to place an excuse or an alibi. You are all aware of the fact that the committee, of which I am chairman, failed in achieving all of its objectives. We were, however, successful in securing some minor amendments in the bill which passed the House, and we did our part most effectively in securing further significant amendments to the bill as passed by the Senate.

To refresh your memory, I want to summarize briefly the progress of rural telephone legislation in the present 1st session of the 81st Congress. On the first business day of the session, Jan. 3, Congressman Poage introduced his perennial bill as H.R. 113. On Feb. 24, Mr. Poage introduced a revision of his original bill as H.R. 2960, and it was referred to the House Committee on Agriculture. The Poage Bill proposed to amend the Rural Electrification Act of 1936 to give the administrator authority to make loans under the same terms and conditions as are provided in the original act, (annual interest of two per cent for periods up to 35 years), for the purpose of financing or refinancing the improvement, expansion, construction, acquisition, and operation of telephone lines, facilities, or systems to furnish and improve telephone service in rural

areas. The bill further provided that the administrator, in making such loans, shall give preference to persons providing telephone service in rural areas, and to public bodies, cooperative, non-profit, limited dividend or mutual associations. It also provided that for six months from and after the effective date of the act, no applications for loans were to be received by the administrator except from persons who on the effective date of the act were engaged in the operation of existing telephone service in rural areas.

It was recognized that this legislation, if enacted in the form introduced, would provide the opening wedge for competition by government financed REA cooperatives, with privately owned and operated telephone companies. And in a wider scope it constituted another undesirable step in the creeping paralysis of statism as against individualism.

Hearings on H.R. 113 were held before a sub-committee of the House Committee on Agriculture, on Feb. 14, 15 and 16 of this year, with Congressman Poage as chairman of the sub-committee. Proponents of the bill led off with REA Administrator Wickard followed by the REA program analyst Weitzell, who presented statistics purporting to show that the percentage of farms with telephones was 38.7 per cent in 1920, and was estimated by him to be 42.2 per cent at the present time. Senator Hill of Alabama, author of a similar bill in the Senate, and Gordon Pearsons, president of the Alabama Public Service Commission, who is generally credited with being the original advocate of REA telephone service, testified for the bill.

Additional witnesses appeared as proponents representing the National Grange. The managers of several REA cooperatives and a number of individual farmers testified in support of the legislation. The concluding witness

Left to right: G. E. MORSE, Reliable Electric Co.; G. O. WILSON, Cedar Rapids, Iowa; J. P. KRAFT, Reliable Electric Co., and FRED McGRADY, Everett, Wash.

in favor of the Poage Bill was Clyde T. Ellis, executive manager of the National Rural Electric Cooperative Association, who stated that rural telephone service in the United States was no better today than it was in 1920, and that it was bad then and is getting worse by the year. His completely biased and vitriolic statement rose to a climax when he stated that the Bell System dominates the policies of Independent telephone companies, and that the AT&T company was the most powerful monopoly ever known.

Witnesses representing this association and the Independent telephone industry, spearheaded the attack upon H.R. 113. Facts were presented, based on Bureau of the Census information, showing that approximately 50 per cent of all property defined farms in the United States at the present time have telephone service. Basic and fundamental reasons for the decline in a number of rural telephones in the several years following 1920 were set forth. Based also on the Department of Commerce, Bureau of the Census figures, the increase in number of telephones placed on farms in the five-year period from 1940 to 1945 was shown to be 22.23 per cent. Information from the telephone industry indicated that in the three years since 1945, the industry, Bell and Independent, has made 1,300,000 telephone installations on farms, representing an increase of 34 per cent during this period.

It was pointed out that adequate rural telephone service was not a national problem, but was a problem at most in not more than 15 per cent of the total rural area of this country, and that being largely in certain sections of the south and southwest. U. S. census figures group the United States into nine regions, and it was shown that in six of these nine regions farm telephone development is 70 per cent the same development as it is in the cities.

A direct attack was made upon the proposal to expand the authority of the power-minded REA to provide loans for rural telephones, based on that agency's record of antagonism to private industry and unfair competition against private power companies. If, in the considered judgment of Congress rural telephone legislation was desirable, we urged that it be administered by the business-minded RFC with the necessary amendments to that act to provide for loans repayable over the normal life cycle of telephone property.

With all the force at our command we attacked the provision in H.R. 113 which would permit the REA administrator to make loans to REA cooperatives at an annual interest rate of 2 per cent, for the purpose of duplicating or acquiring telephone facilities without any restrictions whatsoever.

Left to right: E. L. LOVE, Whitney Blake Co.; P. K. RHODES, Reliable Electric Co.; RAY MILLER, Whitney Blake Co.; J. G. KREAMER, Kansas City, Mo.; J. H. INGMANSON and C. G. CUMPSTONE, both of Whitney Blake Co.

We objected stoutly to the provision in the bill that loans be made "to the widest possible number of rural users at rates which are within such users' ability to pay."

Three Bell System witnesses confined their general statements to the tremendous progress which has been made over the past several years in providing rural telephones, and set forth the further plans of associated Bell companies for continuing to expand this service, within the framework of private enterprise, until all rural applications for telephone service are satisfied. F. G. Hamley, general solicitor of the National Association of Railroad & Utilities Commissioners, also appeared before the committee to urge an amendment to preserve the jurisdiction of state regulatory authorities over telephone companies, and to warn against possible legislation which would permit the REA administrator to encroach upon present local state utility regulatory authority.

Ten days after conclusion of the hearings before the house sub-committee, Mr. Poage introduced his revised rural telephone bill, H.R. 2960. On Mar. 9, this bill with certain amendments, was unanimously and favorably reported by the House Agricultural Committee. The most important amendment was the one which provided, "Nor shall such loan be made in any state which now has or may hereafter have a state regulatory body having authority to regulate telephone service, and to require certificates of convenience and necessity to the applicant, unless such certificate from such agency is first obtained."

All of our member companies were fully advised by our Washington office of the most harmful features of the bill. The loan provision for construction, acquisition and operation of telephone facilities meant that federal money could be obtained to construct competing telephone systems, and that a cooperative or a municipality could obtain federal funds to acquire and operate an existing commercial property. You were advised that the bill gave existing telephone companies no clear preference in the granting of loans, and that the six months' period after enactment of the law, during which the administrator would be prohibited from receiving applications for loans except from telephone companies, gave us very little protection.

There was no provision that telephone applications need ever be acted upon or even considered, prior to other applications received after the period of six months. It was pointed out that the amendment to preserve local state regulatory authority over telephone service, applied in only 16 of the 48 states where REA cooperatives are fully subject to state regulation and a certificate of convenience and necessity is required. You were urged to impress upon your representatives in Congress these harmful aspects of H.R. 2960, and to urge them to support of a definite anti-duplication amendment when the bill came before the membership of the House of Representatives for final vote. Many of you responded.

Left to right: R. T. BEARD, MR. and MRS. CLYDE KAUFFMAN, and WESLEY H. LOOMIS, all of Loomis Advertising Co.

At the same time Mr. Ellis, through the facilities of his National Rural Electric Cooperative Association offices in Washington, instituted a tremendous pressure campaign throughout every REA co-op all over the country in support of the Poage Bill.

On July 13, the House of Representatives passed the Poage Bill by the unexpectedly large vote of 282 to 109. Two amendments were added on the floor during debate, the most important one being a requirement that the REA administrator, in all states which do not have jurisdiction over co-ops or require certificates of convenience and necessity, shall make a finding that loans sought will not result in the duplication of telephone service to subscribers already receiving adequate and reliable service. The weakness of this amendment lay in the fact that the REA administrator, rather than the state regulatory authority, shall make the determination of what constitutes "adequate and reliable service." A further amendment provided that loans could be made for "consolidations" as well as acquisition or construction of telephone facilities. Amendments sponsored by the telephone industry for a clearcut anti-duplication clause, the elimination of "acquisition" from the purpose of the act, and an increase in the interest rate on loans from 2 per cent to 3 per cent, were all defeated by voice vote. The pressure by co-ops and the prospect of the benefits of cheap local money found a sympathetic response from members of the House of Representatives.

Left to right: W. C. DILLON, W. C. Dillon, Inc.; ARTHUR BESSEY SMITH, Automatic Electric Co., and J. W. WOPAT, Ft. Wayne, Ind.

In the Senate, Senator Hill, of Alabama, on Jan. 5, 1949, introduced his Bill S-121 to provide for rural telephones through loans to REA co-ops. This was substantially the same bill which Senator Hill had originally introduced in the Senate in 1943 and in each subsequent session of Congress. S-121 was referred to the Senate Committee on Agriculture and Forestry. In addition to amending the REA act of 1936 to authorize the administrator to make loans for rural telephone service, this bill would have authorized the RFC to advance to the administrator amounts up to 50 million dollars per annum for such loans at an annual rate of 1¾ per cent for a period of 35 years.

On Feb. 21, Senator Hill, on behalf of himself and 10 other senators, introduced S-1254 to amend the Rural Electrification Act to provide for rural telephones. S-1254 was very similar to the Poage Bill, except that it contained a provision to preserve any existing state regulatory jurisdiction over telephone service. Funds to carry out the purpose of the act were to be provided by the REA administrator

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MEANING OF SERVICE TO PLANT

By DANIEL SEITZ
Member
USITA Plant Committee

THE plant department is in a strategic position to give meaning to this thing called service. In fact, I should like, if I may, to insert one word making this read—"The plant department is in a strategic position to give meaning to this thing called good service."

Undoubtedly, the *first* and *most important* channel is through its personnel.

Second, by the kind and quality of the station equipment we install and subsequent maintenance we give it.

Third, by furnishing a dependable circuit between the subscriber's station and the central office.

Fourth, and none the less important, is the type of central office equipment, equipment housing and maintenance we provide, and I should like to discuss them in that order.

Personnel

Now, those of us who are responsible for teaching and directing plant employes must ourselves, by precept and example, show them not only how to do good work, but, also, how to conduct themselves when dealing with the public. The plant personnel, with possibly one exception, contacts directly more of the public than any other department within the company. Therefore, through these contacts they may, by cooperation with every other department, contribute greatly in building up a highly efficient and smooth working organization.

Let us not underestimate the potential value of plant men as ambassadors of goodwill for the company as they go about doing what sometimes seem like unimportant jobs. *For example,* the station equipment installer's job may seem unimportant to some who expect him to do a neat job quickly and then move on to the next one. That is good as far as it goes, but if he is properly trained, he will be courteous and diplomatic in helping the subscriber choose the proper location for station equipment in his home, office or factory. Furthermore, when the subscriber selects a location that is not suitable from the company's standpoint, the well-trained installer will know how to tactfully suggest satisfactory alternate locations without offense to the subscriber.

The installer, as well as all other personnel, should be familiar with company policy in general, so that he may give intelligent answers to inquiries made by the public.

Perhaps the maintenance man or trouble shooter must be even more courteous and diplomatic in his dealings with the public than the installer, because he contacts the subscriber directly at a time when his patience may have been exhausted due to service failures. If the repairman is courteous and promptly makes permanent repairs the subscriber soon forgives and forgets. On the other hand, if he is discourteous with the wrong attitude toward his work, the company is sure to lose prestige through his actions. Those who supervise should be sure to not let the latter type of man contact the public.

Let us not get the impression that good manners are the only tools the

D. S. SEITZ

plant men need. Equally important are the actual tools they must have to do a good job. We should always keep in mind the fact that the construction forces, placing poles, trimming trees and doing many other jobs along the highways and on private property have daily opportunities to create goodwill for the company and add meaning to this thing called good service.

Station Equipment

Although we may have a perfect organization, but do not have good equipment for that organization to work with, we cannot hope to give satisfactory service to the subscriber nor gain profitable returns for the company. Nowhere in the entire system do we have a greater opportunity to create a good impression than by providing modern station equipment. The subscriber sees it every day in his home, office or factory, so the condition in which we maintain it governs, to a great extent, his opinion of the service, the personnel and the company in general.

Also, there are accessories located on the subscriber's premises, such as lightning protectors, ground connections and wiring that play equally important roles in providing good service. May I point out several specific things, without going too far afield, regarding these accessories. Any standard lightning protector may be depended upon to do a good job in rural areas where lightning is prevalent if it is housed and mounted properly and connected to an approved ground.

Water pipes are usually the source of a good ground if they are part of a town or city water system. But, beware of the isolated rural water system where electric power wires are grounded to such pipes. Never ground telephone protectors to the same pipe with electric power grounds on these isolated water systems. Unnecessary protection and the lack of good protection account for a large part of the maintenance expense in lightning areas. Therefore, we should keep simple but complete trouble records, analyze them periodically and learn from them where to apply corrective measures. If this is done intelligently and proper remedies are applied, we can soon reduce troubles to a minimum and that is a contribution to this thing called good service. In some locations, especially where the plant is underground, protectors with fuses often are a nuisance rather than a benefit. Today, central offices with protectors having discharge blocks, but no fuses or heat coils, are being installed in areas where all cables are underground for some distance from the exchange. The same protection is used even though the underground cables are extended by aerial cables in the outlying areas.

The best protector available is useless unless it is connected to a good ground. Therefore, do not overlook the value of measuring the resistance of grounds, for it is the *only way* to be sure about the value of any ground, especially those made by driving a rod. Inexpensive ground measuring equipment is available that anyone, familiar with making simple electrical measurements, may use successfully. Although the station equipment has been installed, with due regard for possible mechanical damage to the wiring or apparatus, subsequent electric wiring and appliance installations may be made without sufficient clearance be-

tween the telephone and electric services causing hazards, especially in rural areas where lightning is prevalent.

One telephone company has prepared a folder pointing out to the subscribers how close proximity of the telephone wire and electric wire or telephone and electric appliances will cause frequent interruptions to the telephone service caused by lightning discharges between the two services. This folder is illustrated with several photos showing right and wrong situations. Also the subscribers are invited to request an inspection of any doubtful conditions that might be suspected.

This inexpensive method has proved valuable in preventing many service failures of station equipment and has contributed greatly to this thing called good service.

Dependable Circuit

The subscriber may or may not know the difference between a telephone and power line and will not be influenced by their appearance like he is by his station apparatus. He does, however, know when he is without good service, so it is up to the plant department to provide a line having the following characteristics:

(1) Good transmission.
(2) Ability to work in good or bad weather.
(3) Good appearance.

Most small companies can not afford to employ trained transmission engineers. However, they may from comparatively simple tables obtain the information necessary to predetermine the transmission characteristics of any circuit they are likely to build.

Satisfactory working of the line in good and bad weather is determined almost entirely by these factors:

Good insulation.
Effective lightning protection and proper tension of the open wire.

If given the proper material, each of these requirements may be met successfully, thereby keeping maintenance to a minimum.

Of course, out-of-sight underground construction is always desirable where the size of the system warrants this type of plant. Careful consideration should be given to the selection of material and method of underground installations, keeping subsequent maintenance in mind. It is suggested that an overall plan of the contemplated ultimate conduit system be developed and the work done ahead of paving operations wherever possible, even though some portions may not be connected to the main system immediately. Placing ducts under streets or highways ahead of paving operations will save many dollars when these ducts are later made a part of the ultimate system. From the financial and quality of service standpoints many open wire lines, except those of only a few pairs, may be replaced with cable economically.

Left to right: CHESTER RUTH, Cook Electric Co.; WALTER TRETTIN, Springfield, Ill.; E. H. B. BARTELINK, General Precision Laboratories; FRANK THILTGES and JOHN JAAP, Cook Electric Co., H. D. HURLBUT, Kellogg Switchboard & Supply Co.

This thing called good service will have a new meaning when the old decrepit open wires give way to a modern cable job. In many instances, the savings in maintenance costs will pay handsome profits on the cable installation investment.

Today, the trend is definitely toward cable lashing and undoubtedly it is proving to be satisfactory. It has many advantages over the ring support.

We referred to the importance of station and central office protection. Now we would like to include modern cable protection methods. Today, effective lightning and power protection at cable terminals does not include fuses. Instead, a short length of 22-gauge bridle wire is connected from the line, which may be either insulated or open wire, to a protector having discharge blocks that will ground solid when the telephone line comes in contact with a power line. From this protector it connects to a standard unprotected cable terminal. When *extremely high voltage current* contacts the telephone line for a prolonged time, the 22-gauge bridle wire will burn off and effectively protect the cable. Undoubtedly, this will save a great many unnecessary maintenance charges, and also will give the subscriber more of that thing called good service.

Left to right: A. J. KOHN, Schauer Mfg. Co.; D. T. WINNER, Butler, Pa., and S. E. WRIGHT, Schauer Mfg. Co.

C. O. Building and Equipment

Central office location and style of architecture makes a definite impression upon the subscriber, but not nearly so much as the equipment we put in the building, and then how well we maintain it. The building must first be *fireproof, functional* and *durable*. Then, if we have the necessary funds, *beauty* may be added to these essentials. The trend being strongly in favor of dial installations, calls for caution in seeing to it that the equipment will meet the demands *today, tomorrow and 10 or 20 years* after its installation. To give service in good or bad weather, it must function with a *maximum of resistance* in the line and a *minimum of resistance* short or ground on the line. These characteristics should be part of the specified tolerances the equipment manufacturers must meet. Operator toll dialing features also should be incorporated in the dial equipment.

There are many other necessary features, too numerous to mention here, that should be incorporated in the central office equipment.

Scheduled routine tests will indicate where immediate attention should be directed and analysis of equipment faults will determine when and where to do preventive work clearing trouble before it happens.

In the central office, as in all other parts of the plant, if we provide the best material to build it with and man it with the best personnel we can afford, it will not be long until we can afford the best material and the best personnel.

MEANING OF SERVICE TO TRAFFIC

By W. A. DICKENSON
Member
USITA Traffic Committee

WE can hardly think of telephone service without thinking principally of the traffic department. It is in this department that "public opinion," "customer goodwill" and "customer satisfaction" are born. How well these three thrive depends so much on proper supervision and thorough guidance. The product of this department is intangible, therefore, it requires a high degree of thoroughness and vision and cannot be considered as a stepchild or a novelty.

The meaning of this think called service? If you were to ask this question of on operator, a supervisor or a chief operator you would receive the same answer from each. It would be—"Service to the traffic department means satisfied customers." Your next question would probably be, what must be done then to realize the full meaning of this thing called service? You would probably be amazed at the rapidity with which this question would be answered and a little surprised to realize how deeply service touches the hearts and minds of these traffic workers. They would probably start with something like this.

Service to the traffic department means satisfied customers and to bring this about we must have—Progressive Management — one which believes in progress and change. One which provides us with adequate facilities and we mean here, type of service, required number of switchboard positions, adequate circuits and trunks, well-maintained switchboard equipment such as cords, keys, jacks, circuits, ringing power, transmission, etc.

They would place particular emphasis on providing and maintaining of modern workable headsets and comfortable operator's chairs. They would surely mention footrails. They would touch upon such items as proper lighting, good ventilation, pleasant working and relief period quarters, that are kept clean and attractive. There would be a mention of lockers, emergency lights, drinking fountains, etc. They would point out that there is a definite relation between all these mentioned factors and service.

If they would continue this service it also would mean an interested management, one who is interested in the functions and results of the traffic department. This would include visits to the operating room, discussions of peg counts and load results with traffic supervisory personnel. It would mean keeping informed on force movements, on service commendations and criticisms and on work accomplishments.

W. A. DICKENSON

It would mean the acceptance of uniform training and operating routines and practices and the development of well-trained personnel to effect their adoption. It would mean the provision of competently trained, highly qualified chief operators and supervisors and instructors who would assist, counsel, guide and direct. It would mean the application of the essential principles of a democratic leadership.

There, again, they would point to the definite relationship between the listed factors and service. They would also tell you confidentially that the chief operator's present salary differential is not commensurate with the responsibilities required.

Finally, they would say, that this thing called service means an understanding management, or more effectively this thing called service means good *human relations*. This, they would point out, means an analysis of work situations, a study of aptitudes, morale and attitudes. It would mean an understanding of the employes as well as the understanding of one's self. They would say that too often one of the basic factors in poor human relations is the misunderstanding which arises between people rather than the existence of uncooperative people, and consequently morale is affected and service suffers. They would continue by saying that it does not matter whether a person is young or old, smart or dull, experienced or inexperienced, operator or chief operator—in whatever group she may fall —she always wants the satisfaction of knowing that she is recognized as the important person she is to herself. She likes to be told about her work, whether it is good or whether it is bad, believing that the measure used is how well the job is done, not how bad it is.

Emphasis would be laid upon morale, which they define as group spirit that has a staying quality filled with interest, enthusiasm and zest—for they say when morale is good, service is good—definitely morale affects quality of work or service. Dissatisfied, confused, frustrated, unhappy workers just do not fit in the good service picture.

It is the happy worker, the satisfied worker, the loyal worker, the worker who firmly and proudly believes she is working hand-in-hand with a progressive, interested and understanding management that will bring about the full meaning of this thing called service—which to the traffic department means *satisfied customers*.

Left to right: J. W. BERRY, L. M. Berry & Co.; MRS. J. W. CRAIG, Dayton, Ohio; B. H. CRAVENS, Jamestown, N. Y.; MRS. J. W. BERRY, and H. F. SCOTT, L. M. Berry & Co.

MEANING of SERVICE to COMMERCIAL

By RALPH VAN TRINE
Chairman
USITA Commercial Committee

FOR the purpose of this short discussion the word service will be considered solely from the standpoint of the telephone subscriber and the applicant for telephone service. The average subscriber cares little and knows less about the mechanical, electrical and human things that go into the provision of good telephone service. He appreciates the neat and attractive appearance of the telephone instrument located at his home or office, but, primarily, he is interested in what he can do with that telephone to further his business interests or to carry out, more fully, his social and community life.

We telephone people know what it means to provide good telephone service. We know what it takes by way of equipment, materials and human beings to furnish a satisfactory telephone service to the subscriber. If all our operating departments, including the commercial department, have the facilities and the personnel and the knowledge to furnish a good, satisfactory telephone service to our subscribers, and are doing it, then "The Meaning of This Thing Called Service to the Commercial Department" helps to create a pleasant relationship between the subscriber and the representatives of the commercial department.

To the subscriber the commercial department is the point of contact for matters concerning his telephone service. We are the listening post for his complaints or his praise. We are the mouthpiece through which the telephone company explains and attempts to satisfy subscribers' complaints or who courteously thanks the subscriber when a word of praise is given about our service. No other department in the telephone business is so directly affected and its work so greatly increased when it or any other department allows the telephone service to the subscriber to deteriorate. To illustrate briefly the direct result of subscribers' service deterioration on the service provided by the commercial department we will consider the two groups in the commercial department who have the greatest number of contacts with the subscribers.

Cashiers. It has only been during the past few years that any large percentage of telephone subscribers have been coming to the telephone office in person to pay their telephone service charges. In bygone days most telephone accounts were paid by check and only a small percentage of the total subscribers had a personal contact with our telephone cashiers.

In recent years banks have established and placed into effect what they term service charges for handling checks drawn by our subscribers on their bank account. Charges made by banks for this so-called service vary in different sections of the country and in different towns and cities. However, it is not unusual to find a range of from 3 cents to as high as 6½ cents service charge made against a bank depositor for drawing one check against his account in the bank.

RALPH VAN TRINE

There is no doubt this so-called bank service charge has brought our subscribers to our cashiers' windows to pay their telephone accounts in cash. I do not know what the percentage may run with your particular company, however, I do have figures on one fairly sizeable Independent company whch show that 73 per cent of all of its accounts are collected in cash through the cashiers' windows. Prior to the bank service charge for cashing checks I doubt whether, in this same community, as many as 25 per cent of the subscribers came to the cashiers' windows and paid their telephone account in cash.

As banks began levying service charges on checks drawn against customers' accounts an additonal burden and expense was immediately placed on the telephone companies. It is true that the banks are not collecting their service charge on these telephone accounts paid in cash, but it must be recognized that the cost to the telephone company in supplying cashier service is greatly increased as the use of checks to pay telephone accounts is decreased. Again referring to this company where 73 percent of its subscribers pay with cash, it is found that it costs that company 4½ cents per account collected, in dealing with cash payments, more than it does to handle an account paid by check and delivered through the mail.

When a telephone company has around 75 per cent of its subscribers coming to its commercial office, and paying their telephone service charges to the cashiers, then we are meeting, each month, a large majority of the telephone users.

It is not the most pleasant thing for the average person to pay bills, therefore, his attitude when paying his telephone service charges at the cashiers' windows may not be too friendly and he may be inclined to pick fault or to claim errors or to grumble about the service if there is any faint justification for his complaints. It is obvious that cashiers must be well equipped to courteously handle these people and to refer them to the proper division of the commercial department where their complaints may be satisfactorily adjusted at that time.

Commercial Representatives. Most larger telephone exchanges have a group of people known as commercial or service representatives who are available to subscribers and prospective subscribers for dealing with applications for service, moves, changes and disconnects. In smaller exchanges one person may act as cashier-commercial representative and have other duties, however, these remarks as to the service to the subscriber or applicant are just as important in the small exchange as in a large one.

It should be emphasized that the treatment accorded an applicant for telephone service may have a great deal to do in getting started off on the right track in providing that party with good telephone service. As a prerequisite, the commercial representatives must know the ability of the other departments of the company to furnish the service being applied for. They must know whether that service will be installed within a matter of a few days, whether that service will be delayed until further equipment or

plant facilities are made available, or whether the company can give no assurance that service will be established at any time in the near future.

Should commercial representatives fail in making a satisfactory arrangement for the installation of service for an applicant and that applicant has to return and return again without getting any definite assurance as to when he will have telephone service, then the commercial representatives's load is being built up greater and greater and our service from the applicant's point of view is bad.

Conclusions. It is high time that the commercial department and all other operating departments look into this thing called service from the subscribers' point of view. The maintenance and adequacy of the plant and equipment and the human element in traffic, accounting and commercial departments must be brought up to a satisfactory standard so that good telephone service will be provided to the subscriber.

It is important that the commercial department get on a businesslike basis in treating with applicants for service. It must be informed by the other operating departments as to what statements may be made to applicants for service and for moves and changes of service for present subscribers. Having been provided with factual information that may be given to applicants then the other departments must back up the commercial department and see that the statements made to the applicant are carried out and that installation of service is made at the time indicated.

With this coordination between the various departments and the commercial department, it will be possible for that department, because of its being the point of contact with the subscriber, to function in a courteous and businesslike manner and to help bring about that feeling on the part of our subscribers and future subscribers that our telephone company is providing a good telephone service and that is what is meant by "This Thing Called Service to the Telephone Subscriber."

MEANING OF SERVICE TO MANAGEMENT

By RAY DALTON
USITA Vice President

I HAVE been asked to discuss the relation of "Management" in our industry to "The Meaning of This Thing Called Service." As a man who likes precise definitions, the use of the word "thing" puzzled me. Why "thing"? Why not just "the meaning of service"?

I turned to my dictionary. Out of over three-quarters of a column of assorted definitions, my eye lighted on this—"Any object viewed disparagingly . . . " That explains a lot of our gray hairs.

Seriously, I think that the tie between telephone management and telephone service embraces fundamentally all of the normal relations of a manufacturer to the product he sells. In addition, there are some conditions which the ordinary manufacturer "of ships and shoes and sealing wax" is not required to consider at all. We have fundamentally similar problems of supplies and employment. We must satisfy the needs—and, in normal times, promote the requirements—of our customers. We must set rates for our product and finance our capital additions so that we can operate profitably, not only the plant we have but the continual plant expansion that is a necessity in all live industries.

The other conditions we must face, that do not concern ordinary manufacturers, are these. Telephone service is a natural monopoly, Senator Hill and Mr. Poage to the contrary notwithstanding. Any move towards competitive operations in our business is retreat, a retrogression from the splendid efficiency we have built up by eliminating competition and substituting cooperation. As a result, we must have fair, competent and understanding relations with the regulatory commissions officials. As we expect them to appreciate our aspirations and our difficulties, we must respect their opinions and their requirements. In this respect, we must endeavor to see our problems twice, through their eyes as well as through our own.

Our first consideration is the product itself, the service we have to sell. There is a slogan: "The best possible service for everyone who wants it at the lowest possible rate consistent with adequate maintenance of our plant, fair wages to our employes and adequate returns to our investors." That is an excellent statement of service policy for any company. However, when we apply it during a period of unbalance and over-expansion as at present, there are pitfalls. There is a real danger that our facilities may become excessively overbuilt.

You know, engineers as a rule are optimistic fellows. They can demonstrate in convincing fashion the merits of a 10-year program replete with new sub-exchanges, underground cables, aerial cables, an extensive toll network, and all of the accessories to care for anticipated developments that look so attractive in chamber of commerce literature and commercial surveys. I saw commercial engineering forecasts in the middle twenties, on the strength of which millions of dollars of new construction were expended. These were predicated on a straight line progress chart running well into the late thirties. You know what happened to that curve and those cables and buildings and pole lines after 1929, not to mention what happened to the unfortunate investors whose dollars had paid the bills.

Left to right: HUGH PULLIAM, Black River Falls, Wis.; R. T. SNYDER, Buckeye Telephone & Supply Co.; ROBBINS TILDEN, High Point, N. C.; C. O. IVERSON, Amherst, Wis.; D. L. WILLEY, White Salmon, Wash.; R. L. HEPNER, Buckeye Telephone & Supply Co.; G. B. THOMAS, White Salmon, Wash., and W. C. SNYDER, Buckeye company.

I am not an alarmist. However, without the least desire to pose as a prophet of disaster, I do suggest that this is a time for caution. No boom lasts forever. The present boom has lasted about 10 years and the primary cause of it, the war and its aftermath, is losing its driving force. I suggest that we should plan on reasonably demonstrable trends for not more than three years. In the light of present trends and indications, we owe it to ourselves, to our investors and to our subscribers to resist the urge to over-expand. It is very easy to justify the expenditure of large sums of money for more modern buildings, equipment and far-flung cables in this buoyant period. If the boom lasts another decade, that will prove to have been the best and cheapest policy; but I see no justification for that sort of gamble with our stockholders' money. Invested capital is our life blood. We must guard and protect it.

A similar consideration of balanced compromise should govern the quality of our service. All of us would like our service to meet certain ideal standards. We would like every manual local call to be answered immediately by the operator and not more than 10 per cent of such calls to have a waiting period of more than five seconds. We would like our dial calls to encounter no busy trunk groups, no waiting for the dial tone. We would like every case of trouble to be given prompt treatment at any hour, day or night, week-end or holiday, and cleared within an hour or two. We would like every new application for service to be completed within 48 hours.

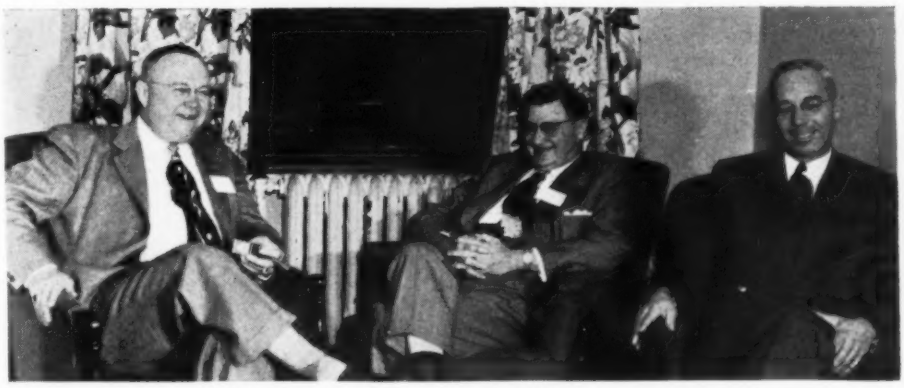
It would be fairly easy for any of us to achieve that ideal. It would be just a matter of installing enough outside plant and switchboard facilities, hiring enough operators and plant men and paying enough overtime. We would be giving the "best possible service," but it is readily apparent what would happen to our capital structure and to our operating expenses. I am positive that the rates to be charged for our services would be so high that we would price ourselves out of the market. We would be financially unable to maintain our plant properly, to pay dividends to our investors or as a direct result of that, to finance our plant improvements and extensions.

It is axioimatic that we must satisfy our customers. That does not necessarily mean that we are to give them all that they want or ask. That cannot be done. It does mean, however, that we must either meet their service requirements or make them quite understanding and content about our inability to do so. We must furnish good and dependable service to the public. However, in the furnishing of such service, our objective should be one of reasonable balance, bearing in mind the quality of service on the one hand and the cost of rendering that service on the other hand. We must avoid the point of diminishing returns beyond which the rendering of superfine service is not justified by the cost of labor and equipment necessary to achieve it. If we fail to operate at a profit, everyone suffers, including our subscribers. Again, this is a question of using sound judgment in taking the middle road.

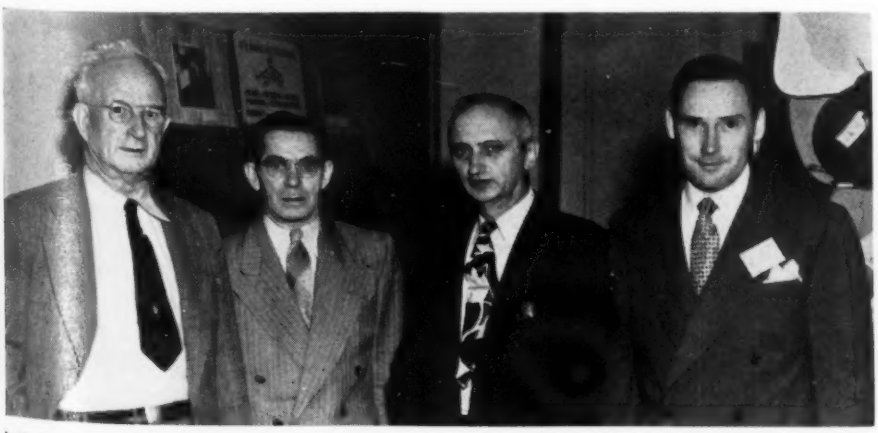
Something definite can be done to improve our service without the expenditure of money, but it calls for a well-planned and an intelligent approach. I refer to our employes' pride in our service, what the French call "esprit de corps." We had that spirit in full measure in our industry in years past but to a great extent we have lost it. I am not attempting to place the blame for this condition. All of us are victims of a troubled and changing period. Whatever the cause may have been, the sort of spirit I mean is worth all possible effort to recapture.

(Please turn to page 96)

Left to right: CARL D. SMITH and D. J. NEALE, both of Neale Construction Co.; MRS. D. J. NEALE and M. T. ROBINSON, both of Cable Spinning Equipment Co.



Left to right: S. A. BROOKS, Page & Hill, Inc.; WALTER DAKIN, Madison, Wis., and A. E. GUSTAFSON, C. M. Christiansen Co.



Left to right: D. J. WHITE, Everstick Anchor Co.; R. R. WINDERS and ALEX GIEST, Winders & Giest, Inc., and HOWARD BERSTED, Leich Sales Corp.

NEW DEVELOPMENTS, TECHNIQUES

By B. C. BURDEN
Member
USITA Plant Committee

IT HAS been said that "Everything begins with an idea." In collecting data for presentation at this convention, I am again, as always, impressed by this bit of fundamental philosophy. New developments, improved operating techniques and the better way of life—all have their origins in an idea. In my opinion, our annual convention is a good base on which to build new and different ideas which will aid our industry in giving finer telephone service to our subscribers and a better break to our investors.

Our business is inherently stable—we do not bring out yearly models, nor do we find occasion to change our operating techniques every six months. However, we must be careful that this essentially stable and somewhat static character of our business does not stunt our capacity for new and constructive ideas. When this convention is over and we all return to our local bailiwicks, I suggest we put on our best bifocals and carefully scrutinize our present plant methods and objectively analyze our various operations in a search for better service at lower cost.

Many of our best ideas have come from attic rooms and kitchen tables. A good example is the CLR toll practice. This was an idea of a small telephone company owner who asked himself, "Is there a better way?"—and found there was.

Mr. Bailey has asked that I talk to you on new developments in the telephone field. In connection with this request I recently asked a top-flight research engineer what he considered to be new and different. He said, "Just tell them we are now doing what we talked about last year."

One of the principal developments we talked about last year was "Nationwide Operator Toll Dialing." Toll line dialing on a nationwide scale is now out of the drafting room stage and in practical field operation.

A number of our major cities have already been cut over to "nationwide dialing." Recent cities to be included in this network are New York, Chicago, and Oakland, Calif. Many toll centers are now equipped to handle incoming and outgoing toll calls from those cities which are set up for full nationwide dialing service.

How soon the entire country will be on a toll dialing basis is hard to say. But the advantages of speed, dependability, and uniformity of service insures that Nationwide Toll Operator Dialing will eventually almost completely replace manual ringdown methods. When it is in full use, speed of service on a toll call will be almost as fast and convenient as the dialing of a local number. Even though your exchanges are not yet participating in the nationwide dialing plan, they will profit by the substantial speed-up in the handling of most long haul calls.

Key set pulsing is used in setting up numbers to be dialed. Key pulsing is faster and better meets the technical requirements than ordinary dialing.

As my friend the research engineer said, "Last year we talked about it; this year we are doing it." This certainly applies to Automatic Toll Ticketing, or as the Bell call it, Automatic Message Accounting. This new equipment technique is definitely out of the experimental stage and is now in full-scale commercial use. Installations are going in at Park Ridge and Des Plaines, Ill. A major installation will soon be in operation at Sunland, Calif. The Bell System also is making several installations.

B. C. BURDEN

The need for automatic toll ticketing is rapidly increasing, particularly near the more populous centers. This results from the rapidly mounting labor cost of handling short haul toll tickets and the growing volume of this type of traffic.

Automatic toll ticketing is particularly beneficial on high volume short haul toll traffic. With this type of business the cost of handling the tickets is out of proportion to the revenue derived. Automatic toll ticketing has gone through a development period during which time it has taken on various forms. Time does not permit even a high spot review of the various technical aspects of this automatic means of relieving operators of an expensive labor consuming function. Suffice it to say that automatic ticketing mechanism in its latest form, under the control of impulses from the subscriber's dial, automatically punches a paper tape and records the following information on each call:

(1) Date.
(2) Time.
(3) Calling station number.
(4) Calling station class of service.
(5) Called station number.
(6) Rate which applies to call made.
(7) Conversation time.

This information established by perforations in a paper tape may be used to control a "printer" which prints a toll ticket, or it may be fed to a business machine which punches a tabulating card which is automatically sorted and fed into a machine which prints the subscriber's bills.

The extent to which automatic toll ticketing may be used on other than fixed rate short haul toll traffic is not apparent at this time. It will certainly be used under control of the toll operator to cut the labor cost of ticketing long haul calls by relieving the operator of much of the mechanical work of recording information on a ticket. It is reasonable to conclude it will eventually enable completely automatic subscriber-to-subscriber toll calls on even the long haul business.

Crystal ball gazers often find their predictions, which are sometimes made through rose-tinted glasses, somewhat premature. Your speaker is no exception. In 1945, I predicted that microwaves would soon play an important part in our day-to-day operations. It is now almost 1950 and I am sure if I called for a show of hands I would find none here who have been able to retire their bonded indebtedness from savings made through the use of microwave links in place of pole line. In spite of being a little off on my timing, I am still confident microwave techniques will occupy an important place in our future.

In the "big time," microwaves are now hot stuff. There is reason to believe that practical low-cost microwave link systems will not be far behind the deluxe editions now being installed by the Bell System in various parts of the country.

A recent questionnaire sent out by a fellow optimist, Fred Norris, chairman of our Radio Committee, has brought information which indicates the microwave equipment manufacturers are not unmindful of the need for simple link equipment suitable for Independent telephone company use. They state that they are actively working on the design of equipment which would have practical and economical application in lieu of wire lines. The allocation, last May by the FCC, of fixed bands of microwave frequencies will hasten development work in this field.

When we met last October the Bell System had just completed a microwave system between New York and Boston. Since that time construction on a number of new links of this type has been undertaken. The largest single project in the microwave field now under way is the New York to Chicago system which is routed via Cleveland and Toledo. This major system has profited by the initial experience on the New York-Boston link. It undoubtedly establishes a basic pattern which future high capacity multi-channel microwave systems will take.

Operation is in the band of 3,700 to 4,200 megacycles. The system will handle six two-way television channels, or approximately 600 telephone conversations on any one of the six channels in the event they are not used for television. The telephone channels will be derived by applying type L coaxial modulating apparatus to the several microwave channels. The 838 mile route between New York and Chicago will require 33 intermediate relay stations.

Relay station spacing is approximately 25 miles. The stations are located in a zig-zag pattern rather than a straight line as this minimizes interference due to the microwave beam extending beyond the station for which it is intended.

The relay station tower buildings are 24 ft. square and employ what is known as "package design." Access to the several floors is provided by means of a circular steel staircase. The radio transmitting and receiving equipment is located on the top floor, batteries and electrical equipment on the second and third floors, and the emergency power generator on the ground floor.

A unique construction method is being used in the erection of these buildings. Construction of the building proper is accomplished by the "sliding form method." This unusual method permits the reinforced concrete building walls to go up at the rate of about 18 ft. per day. The forms are moved upward by means of screwjacks. The process of slowly raising the form is continuous and requires no waiting time for the concrete to set. Approximately 700 tons of concrete and 20 tons of steel go into a 60-ft. tower. The antenna is of the metal lens horn type and weighs about 1,800 pounds.

In contrast to the elaborate tower buildings required for these high capacity microwave systems of the Bell, it can be anticipated the building requirements for the relatively simple microwave relay systems which would have application in typical Independent plants could consist of light steel towers with equipment contained in weatherproof housings similar to that employed in connection with power line carrier systems.

Any consideration of using microwave links in lieu of wire telephone lines should take into account the following factors:

(1) Microwave systems are now and will continue to be relatively complicated as compared to wire lines and associated equipment.

(2) Microwave radio links should offer greater flexibility than wire lines

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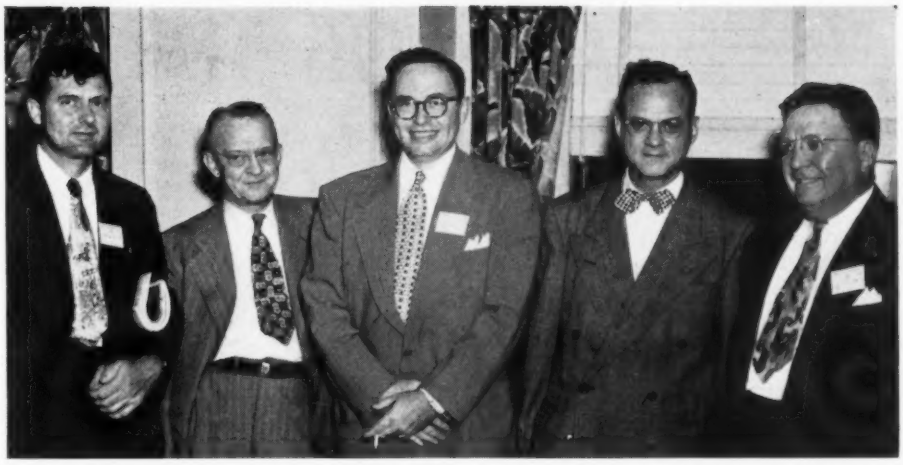


Left to right: EVERETT WEBSTER, Polo, Ill.; C. A. MARTEN, Graybar; DON CARROLL, Hubbard & Co.; FRED MASTERSON, American Crossarm & Conduit Co., and E. C. NELSON, Hubbard & Co.

Left to right: J. I. KENNEDY, Freeport, Ill.; D. C. GIBSON, Leich Sales Corp.; MRS. and MR. H. G. LANKFORD, Chicago, and H. R. McNAUGHTON, Indiana Steel & Wire Co.

Left to right: L. M. FRANK, SPIKE HANNA, and F. E. ELDRIDGE, all of Gould Storage Battery Corp.

TALES OF THE NINETIES

By J. P. BOYLAN
Chairman
Rochester (N. Y.) Telephone Corp.

TALES of the nineties have a glamour all their own. Those were the days when most women wore bustles and hats the size of a parasol, did cleaning, washing, ironing, raised big families, went to church on Sundays, were too busy to be sick. Men wore whiskers, chopped wood, bathed once a week, drank 10-cent whiskey and five-cent beer, worked 12 hours a day, and lived to a ripe old age. Stores burned coal oil lamps, carried everything from a needle to a plow, trusted everybody, never took inventory, placed orders for goods a year in advance and always made a little money. . . . Today, most men have high blood pressure, little hair, bathe twice a day, play the stock market and die young. But let us not forget that in the good old days, within the memory of some of us, there were among the numerous blessings we enjoyed, no wars nor rumors of war.

A half a century elapsed between the Civil War and World War I, not taking into account the Spanish-American War, which, by comparison, was only an incident.

The peace and orderly procedure of half a century is gone and in its place we are plagued with rumors of war and universal unrest. The confusion that now exists is well illustrated in a story told of a little celebration which took place in a saloon. Mike Flanigan was holding forth pretty much under the well-known influence. The sound of running feet on the street and the fire department going by, attracted his attention. Someone on the street pushed open the swinging doors and yelled, "Flynn's house is on fire." Flanigan rushed from the saloon and, in his dazed condition, failed to negotiate a street corner; stumbled and rolled over near the curb. Sitting up on the grass with a puzzled expression, he scratched his head and muttered, "What in hell am I running for? My name isn't Flynn."

In the midst of this disorder, wherein some of us do not know our own name, we are launched on a mad spending spree and we do not have to go outside our own industry to witness the uncalled for extravagance manifested in certain proposed legislation. When we elected a congressman, senator or President in the good old days, we could go home and sleep at night; now we elect a congressman, senator or President, we literally have to sit up all night with a shot gun across our knees in an effort to safeguard what precious liberty we have left.

Don't ever let anyone sell you short on the good old days, for those were the days when there was some semblance of business in government and little if any government in business. And that is why we, of the tottering age, like to associate and recall incidents of those by-gone days, incidents tinged with object lessons—and not without their humorous aspects—which we might well employ today.

And so, with your permission, I shall relate a telephone tale of the nineties that occurred in northern New

J. P. BOYLAN

York 33 years ago carrying the title "Progress in Reverse."

The general manager had just arrived home after attending the annual state telephone convention.

The children returning from Sunday School seeing their Dad's car in the driveway, dashed into the parlor to greet him.

"Did you have a nice time, Daddy"? inquired little Mary, as all three children climbed on his lap.

"A wonderful time," echoed Dad, "and I learned a lot, too. What did you children learn at Sunday School today?"

"The teacher told us the story about Lot's wife," replied Mary. "She and her husband lived in a very wicked city and the Lord decided to destroy the city. Lot and his wife were the only good people living in the city so the Lord warned them to flee at once but not to look back. But Lot's wife was too curious. She looked around and turned into a pillar of salt.

"What a coincidence," exclaimed Dad. "Your mother was driving out in the country a few weeks ago. She looked around and turned into a telephone pole."

Dad laughed heartily at his humorous play on words and the children looked askance with blank and puzzled expressions.

"Not a bit funny," said Mother, coming in from the next room. "Maybe that brand of humor would be more appreciated down at the Elk's Club."

The general manager sat at the breakfast table the following morning reading the daily paper. The article which he had read at the state convention on "Public Relations" was printed in full. He was very proud of this article and was glad that the local paper had published it, for the reason that there were many things that he wanted to get across to his subscribers. He placed special emphasis in the article on the fallacious notion that telephone operators were given to listening to and repeating telephone conversations of subscribers. He stated that while this erroneous impression seemed to persist he had yet, in all of his experience, to learn of a single instance where a telephone employe had been guilty in this regard.

He also told his listeners that his company had started on a program to improve rural telephone service. He stated that just before leaving for the convention they had changed an eight-party rural magneto local battery circuit to common battery, harmonic selective ringing service. He was sure that the farmers would welcome the new up-to-date city service.

A surprise awaited him, however, as he reached his office. Several men were present and his clerk was scurrying around trying to find chairs to accommodate his visitors.

The spokesman explained that the seven callers were the rural subscribers whose service had recently been changed to selective ringing. The other subscriber, Jed Calkins, he added, would have been present also, but had an appointment with the veterinarian to look after a sick cow. However, Jed was in full accord with the protest all the subscribers desired to make regarding the change in their telephone service.

The general manager was amazed. "I don't understand," he said. "I personally tested each of the eight telephones and found the service perfect."

"That's the trouble," replied the spokesman. "It's too gol darn perfect—

Left to right: P. VAN VALKENBURG, H. C. RYON, and R. B. WISEMAN, all of North Electric Mfg. Co.

too rich for our blood. Since you put in this selective ringin', my house is like a morgue. Afore this, every code ring was the subject of conversation in all our homes. Ma would be knittin' of an evenin' and the bell would give two short and one long ring. Ma would say, 'That's Joe Small, I reckon, callin' his Ma from college. He usually calls every Thursday about this time and'—"

"Same's true at my house," interrupted another of the delegation. "We sure do miss the 'phone ringin' all day and evenin'. Why even our canary has stopped singin'."

"Let Bill do the talkin'," said one of the men. "That's what we agreed on afore we came here."

"What I'm-a tellin' you," continued Bill, "is not my own complaint, it's the kick all of us has a-comin'. Afore you put in this new fangled arrangement, the operator would ring us all at once every mornin' on a special code ring and give us the weather report. She can't do that now. When Ma and I drove to town we would always stop at our neighbor's and ask them to answer our calls. We all know each other's code ring. We can't do that now.

"When the bell ceases ringin' for an hour or more, it's always been a safe bet that the line was out of order, so we'd get busy right away and report it.

"We always used to call each other on our line without bothering the operator. There were times when we couldn't get the operator because of trouble in the exchange, but we could at least call each other. This was most important especially in case of emergency. We can't do that now.

"All of these features were mighty convenient and necessary and we miss 'em like all-get-out. We're here to get 'em back. You've not improved the service one iota accordin' to our way of thinkin.' No sirree, not by a long shot. It's just t'other way 'round. We want our old 'phones back and by ginger the sooner we get 'em back the better."

"You're darn tootin we do," exclaimed one of the party.

"You never heered of any of us complainin' about turnin' the crank, did you?" continued Bill. "If the operator don't answer when you're in a hurry, thar's a heap of satisfaction in whizzin' the crank around. Now, by crackey, we've found out you can't put any zip or punch behind the anemic wiggle of a receiver hook. 'Pears to me like every one's a-tryin' to make mollycoddles out of us farmers. Why, just t'other day, one of them city slickers tried to sell me a contraption to milk my cows by electricity. Gosh all hemlock, it's gettin' so a man won't be able to work up an honest sweat any more. And my muscles are gettin' flabby just a-thinkin' on it. Well, young feller, that's our story. We want our old 'phones back and I said afore, the sooner the better." Bill reached for his hat. "Come on boys," he said, and his companions followed him out of the office.

Left to right: E. L. MARTIN, American-Coleman Co.; E. L. MOORMAN, Highway Trailer Co.; B. I. NOBLE, American-Coleman Co., and FRANK GOKEY, Highway Trailer Co.

The general manager was plainly stumped. "I can be thankful for one thing," he mused. "That Bill was not at the convention when the chairman asked for comments following the reading of my paper. What a razzing Bill would have given us on our vaunted claims of improved service for farmers."

His soliloquy was interrupted when his office door opened and the daughter of a prominent local merchant entered.

"I read your speech in the morning paper," said the girl archly as the manager waved her to a chair alongside his desk, "and I am afraid that I shall have to take issue with some of your statements."

The manager looked worried. "Please proceed," he said.

(Please turn to page 102)

Left to right: E. G. ELG, D. T. JONES, J. J. HEALY, all of Copperweld Steel Co.; MISS S. McGINTY, Brunker Page & Jones, Chicago; DON CHAFFE, GEORGE HAMBURGER, A. B. LEACH, and W. W. EGE, all of Copperweld Steel Co.

GETTING ALONG WITH PEOPLE

By LEON F. ROBERTS

Commercial Superintendent
Ohio Consolidated Telephone Co.
Portsmouth, Ohio

MY PART in this program is in reality the delineation of another installment of a continued story which I have been telling people in the telephone business—sometimes as the result of my utter inability to keep my own counsel—ever since I was lucky enough to become a member of the industry. I have been telling this story because I believe it is a true story and because I believe it has to do with the most important job we have to perform—that of expanding our activities in the field of public and human relations.

I was inspired to again make this my theme by a few well chosen words which recently I ran across in a newspaper. They were words spoken by Don G. Mitchell, president, Sylvania Electric Products, Inc., who said:

"If there is one thing that I have learned in my business experience, it is the simple fact that the world is made up of people—not governments, not corporations, not buildings, machinery nor money, but people.

"I also have learned that not only is the world made up of people but that people cannot get along without each other. Since this is so, there can be but one conclusion—people must get along with each other.

"That's where business runs into trouble. Everybody admits the logic of the argument, but too few people do anything about it. Business has been the greatest offender, not because it has been anti-social, but because it has focused its attention too much on creating a strong economic position from which everybody, stockholders, employes and public benefited financially.

"It wasn't so much the bad that business did as the good it didn't do that has built up the wall of misunderstanding between employes and employers.

"That's why, in spite of the fact that people eat better, live better and have more leisure and fun here than any place else in the world, it is so easy to make some people believe that the goose that lays all those golden eggs ought to get the axe.

"That's why so many people like myself, who are heads of large companies, are delegating the task of operating the companies largely to others but are retaining for themselves the most important job of all—that of getting along with people."

There you have it! The most important job of all—getting along with people. On the face of it, it seems easy, this getting along with people. But often, we find, it is not as easy as it looks and that is why leaders in American business are giving more and more attention to this thing we call public, or human, relations.

For a moment I would like to pass on to you some of the views of a few of these business leaders. I do so for several reasons. First, you will find them enlightening, I think, and interesting. Second, they will lend authenticity, I hope, to my conclusions; and third, they crystallize many of the opinions I have formed down through the years, but never had the wit to put so cleverly into words.

People engaged not only in big business but in little businesses are giving increasing importance to this most important job of all—getting along with people.

The importance of improving this art is being recognized in all places.

L. F. ROBERTS

The editor of the Washington (Ia.) *Evening Journal* notes that:

"The term 'public relations' is heard on every hand these days. And you should welcome it into your vocabulary. It has arrived a little late but it marks a new era, a new type of thinking. Organizations have discovered that it really does matter what the public thinks, which means progress even if it does lead to a lot of propaganda. Industry made the discovery first when it ran head-on into a lot of public indignation over what went on behind the monopolistic scenes. Now the big labor unions are sensitive to the public's attitude.

"No organization can afford to ignore its public relations, be it a big group or a small one. Government, business, labor, the church, the schools —all have a public relations problem, and it is with them constantly. Yet it has been a constant surprise to me, down through the years, to see organization leaders resist efforts to get facts and figures out to the public. Too often the attitude has been that it's none of the public's business. That's a dangerous attitude and I've seen more than one public official pay the penalty for taking it. So have you, no doubt."

Addressing the Washington and Oregon telephone associations a few months ago, Byron C. Christian, professor of the School of Journalism, University of Washington, emphasized that public relations is and can only be a function of top management. Mr. Christian declared that:

"Public relations is just as much a part of management as production, service and engineering. It is not necessary for the executive to be a public relations technician. He must recognize only that public relations is one of his principal jobs and that he, and he alone, must direct the public relations program of his organization.

"There was a day when the chief executive had to concern himself primarily with production, financing, engineering or sales. But, as James Selvage, prominent New York public relations consultant, points out: 'Tomorrow belongs to the man who thinks in terms of the public—the public embracing his employes, his stockholders, his customers, his neighbors surrounding his factories, often the national body politic—and his government.'

"Public relations involves more than merely publicizing your good works, it involves the fundamental policies and conduct of your organization. Every policy you set, every action you take, will have an impact on certain people —your employes, customers, stockholders, community, etc. If that policy or that procedure is not in accord with their desires or needs, you can be sure that you must weigh it very carefully before putting it into effect. Arbitrary decisions given without notice to the people most affected are one of the most irritating causes of poor public relations.

"Let me use an example which might apply to your own business. I know that telephone companies generally have had to refuse many requests for additional service in these postwar years, due to inadequate facilities or for other reasons. Before such a decision is made, however, a public relations consultant would advise you to consider the public relations aspect very carefully, to call in the possibly offended parties and discuss the matter frankly with them, in the hope that a thorough understanding might be reached. Many a knotty public relations problem has been solved—at least mitigated—in a meeting of minds.

"Program your public relations. Know where you are going and how you are going to get there. It is just as practical to put down on paper what you hope to do with your public relations as it is to plan an advertising campaign or to chart your sales for the coming year. But a public relations

program should not be planned on a one-year basis. Public relations is definitely a long-term venture."

It is, of course, impossible to be on the best of terms with the public if you are not on good terms with the people who work for you. An employer can buy brain power and hand power, but he has to earn heart power. Vibrant voice to this tenet is given by Stanley C. Allyn, president of the National Cash Register Co. Mr. Allyn finds that the most successful business men are those who appreciate human values and who have developed skill in working with people. Interviewing several of these captains and generals of industry, Mr. Allyn found that foremost in their list of requirements for good business executives stood good human relations. He says:

"The old era no longer exists. Family ownership has given way to ownership by many individuals. Today's managers are salaried men, employed for their all around executive ability. Their post is one of stewardship which carries with it responsibility to employes, stockholders, customers and the public.

"The public is the ultimate judge of how well the modern executive fills his position. Today's manager must have a highly developed sense of social service. He must realize that the responsibility of his company to its employes and to the community does not end at the factory gate.

"High on the list of responsibilities is a realization that human values are a vital factor in every business. An appreciation of this fact is not acquired overnight. It grows from within and is rooted in a genuine interest in men and women as individuals, rather than as numbers on a time clock. It finds expression in improved working conditions for employes, in free and open discussion of their problems, and in meeting the natural and normal responsibilities to the community.

"The question of how to develop good human relations is management's No. 1 problem.

"Long ago we learned that if you treat a man like a cog in a machine you have just a cog—nothing more. Make him realize that he is part of the business and you get the greatest essential of all—heart power.

"Employes have a natural desire to be kept informed of the company's policies and objectives. The reason is obvious. The worker's future and that of his family is bound up in the future of the company. It is not idle curiosity that inspires this state of mind. It is dictated by the instinct for self-preservation. If authentic information is lacking, rumor creeps in to fill the void. Rumor makes for fear, apprehension, dissatisfaction and finally disaffection.

"If there is to be a worker satisfaction, there must be the opportunity for management to talk to employes and employes to management. If you want to find out what happens when people don't talk to each other, just try not speaking to your wife for a month. I'll guarantee it won't help human relations in your household.

"More men fail to win promotion or to satisfactorily fill executive positions because they cannot get along with people than for any other reason."

Left to right: A. B. PREBLE, C. H. KNAPP, JOHN LEVIS, JOHN CORNELIUS, N. W. BALDWIN, D. C. MacMILLAN, and W. J. PFAENDER, all of Stromberg-Carlson Co.

Left to right: H. M. HUGE, C. P. STOCKER and G. H. POHM, all of Lorain Products Corp.

Left to right: J. A. FITTS and H. G. CAMPBELL, both of Electric Storage Battery Co., and L. R. ZEARFOSS, Toledo, Iowa.

Thus, does the president of the National Cash Register Co. give voice to his views on the most important job of all—getting along with people. And so, the evidence mounts. Hundreds of others who speak with authority could be called to the witness stand but time does not permit.

There are many ways of promoting goodwill toward a business, and foremost among these is giving the public interesting and factual information regarding the business. A Philadelphia tycoon summed up his success secret as follows:

"Early to bed, early to rise; work like hell—and advertise!"

Everybody in the telephone business works like hell—that we all know—but when it comes to advertising I am afraid some of us have not worked as hard at it as we should have done. But it is never too late to start.

More and more are businesses of all kinds resorting to unique, timely and effective advertising to get themselves and their messages across to the public. Recently there have come across my desk several examples of a new trend in advertising that I believe

(Please turn to page 104)

EMPLOYMENT RELATIONS

By CARL D. BROREIN
Chairman
USITA Employment Relations Committee

AS CHAIRMAN of the Employment Relations Committee of the association I have been called upon to make a committee report. The duties of this committee as defined by the association are "to study wage and hour, labor relations and other manpower problems and Federal legislation pertinent thereto."

The committee's primary activities this year have been concerned with federal legislation increasing the 40-cent minimum wage, the revision of the regulation governing qualifications, particularly salary, of executive, administrative and professional employes for exemption from the provisions of the act, the provision of an operators' wage rate under the minimum for learners and the establishment of a period during which the learners' rate would apply, the simplification of the procedure by which the learners' rate might be obtained and, most important, the continuation or betterment of the provision by which exchanges of less than 500 stations in size are exempt from the provisions of the act.

In order to facilitate the work of the committee in the handling of these various matters, a sub-committee composed of J. C. Crowley, St. Paul, Minn., and S. A. Lane, Russellville, Ark., with Clyde McFarlin of Montezuma, Iowa, chairman, was appointed from our membership. It was desired in the appointment of this sub-committee that not only the committee's work be expedited, but also that the viewpoint of the smaller exchange operators be emphasized in the committee's deliberations and actions because of the extreme importance of the matters with which it was dealing to the small exchange.

To this sub-committee was assigned the principal duty of recommending committee action concerning the exchange exemption provision of the Wage-Hour Act. The opportunity for possible increase of the present 500 station exemption and the necessity for preserving the exemption was brought about by the general overhauling that was proposed in the present Congress of the Wage-Hour Act, including increase of the 40-cent minimum wage level. Clyde McFarlin, as chairman of this sub-committee, will report to you on the activities of the committee and the result of those activities to date.

I am pleased to state that the committee members worked diligently and effectively on the matters with which they were concerned. Not only were several committee meetings held during the year in order that we might advise together and formulate our program, but also constant contact was maintained between committee members, the association headquarters and the representatives of the committee in Washington in order to effectively pursue its program. The membership of the state associations and the membership of the National association cooperated effectively in the committee's efforts; and representatives of the industry were called to Washington as seemed desirable in order to present the committee's and Industry's viewpoints to those in authority. On behalf of the association and the committee I desire to thank at this time all of those who participated in these efforts because it required both sacrifice of personal work and comfort, as well as time, to do the job; and to the various companies who permitted their executives to spend the time on the committee's endeavors which were required to make them effective.

I do not desire to conclude this report without commenting briefly on the matters which it handled during the year. It was the committee's opinion that the telephone industry, and the association as such, could do little in modification of the increase of the minimum wage except to maintain or improve the small exchange exemption. A good part of the industry, especially the larger companies, had taken, over the past several years, steps necessary to cushion the impact of this increase in the minimum wage. The small exchange particularly is seriously affected; and some of the larger companies operating small exchanges are also seriously affected.

It is important to note that telephone service is a 24-hour-a-day-7-days-a-week-service as far as operators are concerned; therefore the increase in the minimum wage will, in the first place, affect the telephone industry on three shifts, not one shift, each day; and on a seven-day work week instead of a five or six-day work week. In addition, the overtime required in such an operation exceeds substantially that which occurs in the average business. Moreover, the telephone industry is perhaps the only industry affected by the minimum wage, which operates in almost every community of the country.

The wage rates provided by the establishment of a higher minimum wage will beyond question bring the industry's wage schedule in a great many areas of the country to a considerably higher level than those paid generally in the area. Moreover, with the minimum raise it will be necessary to adjust other rates above the minimum in order to maintain a differential. These are problems in connection with the minimum wage which are recognized by the association and its committee, and which are serious. They were used in our contacts as fully and effectively as we knew how.

In view of these circumstances, the association took the position that the 500-station exemption should be increased to 1,000 stations. Most of you, if not all, are familiar with the present status; the senate version of the Amendment giving us a 750-station exemption; and the house version, a 500-station exemption. We are diligently occupied at present in seeing that the senate version prevails.

I might add that it goes without saying that the increase in the minimum wage to 75 cents was a surprise, as general opinion was that a 65-cent minimum would be adopted.

Change in the salary qualification for executive, administrative and professional employes is substantial and the committee is endeavoring to secure modification as it applies to the Independent telephone industry.

The learners' wage rates and regulations are highly important to the industry. We expect that an appeal to the wage-hour administrator will result in a hearing at which our case can be presented. Mr. MacFarlin will handle the industry's presentation in this case. The full cooperation of operating companies in furnishing him complete information as it may be requested is most urgent. You will receive a communication and questionnaire in this connection. Our action is designed to minimize the effect on small companies of these wage rate increases under the Wage-Hour Bill. But, after all, telephone rate increases will be required throughout the country to meet the situation.

V V

Everyone has before his eyes an end which he pursues till death; but for many that end is a feather which they blow before them in the air.—Nicoll

NEW MINIMUM WAGE BILL

By CLYDE McFARLIN
Member
USITA Employment Relations Committee

THE Fair Labor Standards Act became effective just about 11 years ago. A large segment of the Independent telephone industry had somehow or other formed the opinion that our industry was exempt from the provisions of the act. We were quickly disabused in this belief when the wage-hour administrator ruled that our industry was subject to the act. Then followed a very strenuous period of activity on behalf of our association, which resulted in the adoption, in August, 1939, of an amendment, which exempts operators in exchanges having less than 500 stations.

As you know, from time to time, bills have been introduced in both houses of Congress, proposing to raise the minimum hourly rate to varying amounts, the highest rate, I believe, proposed being $1.00 per hour.

After 11 years of operation of the act, industry is not too well informed about its provisions and, from time to time, members of our industry have become involved in serious difficulty, because of not understanding the meaning of certain provisions of the act. During my past year of service, as a member of the USITA Employment Relations Committee, and chairman of the sub-committee on wage and hour legislation, I have been met repeatedly with the inquiry as to why a telephone exchange is not a "Service Establishment," within the meaning of the act, There are two reasons why it does not come within the definition of a service establishment. In the first place, the original act itself states that "Commerce" means "Communication among the several states or from any state to any place outside thereof", but, of course, the final and compelling reason is that the courts have specifically held that a telephone company is not a service establishment.

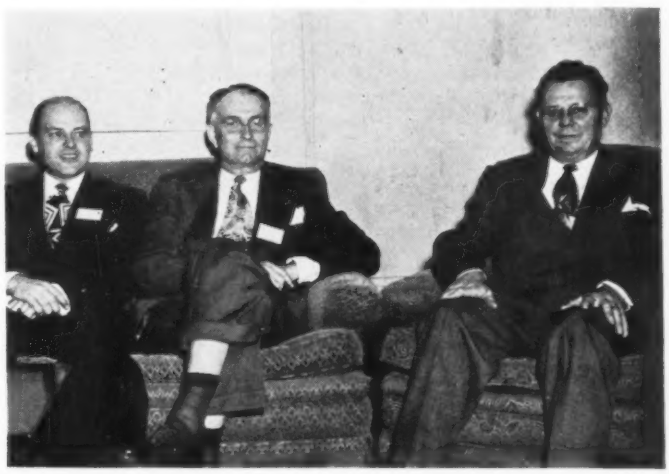
I have no desire to bore you with legal citations, but because so many people in our industry have raised this question, I think it advisable to call your attention to the case of Schmidt *vs.* Peoples Telephone Union, decided by the United States Circuit Court of Appeals of the 8th Circuit. The court uses clear and succinct language in reaching this conclusion. May I quote briefly:

"We do not think that Congress used the term 'service establishments' in its broad sense, which would include public utilities such as railroads, gas and electric companies, telephone and telegraph companies, and the like. In its narrower sense, the term applied to an altogether different class of business, such as restaurants, hotels, laundries, garages, barber shops, beauty parlors, funeral homes, shoe-shining parlors, clothes pressing, clubs and the like.

"We are of the opinion that the fact that specific exemption is provided for certain switchboard operators of public telephone exchanges in the exemption contained in 29 U.S.C.A., paragraph 213 (2) (11) negatives the possibility that Congress may have intended 'retail or service establishment' as used in the exemption contained in 29 U.S.C.A. paragraph 213 (a) (2) to include public telephone exchanges."

Another point frequently raised, even at this late date, is that such a small percentage of the income of local telephone exchanges is derived from interstate tolls the exchange is not engaged in interstate commerce. This line of reasoning has some legal support in the doctrine called "De Minimus". This phrase translated freely and applied to the situation above referred to, means the amount of interstate business is so inconsequential and makes so small a part of the total volume that it should not be considered as substantial by the court.

However, again the courts have held that because of the fact that communication is specifically mentioned in the act, and secondly, because of the fact that Congress, by the so-called "Herring Amendment," gave an exemption to operators of exchanges having less than 500 stations, Congress had recognized, by passing such an amendment, telephone companies were subject to the provisions of the act, and that, therefore, the rule of De Minimus did not apply.



Left to right: R. L. KLINGEL, St. Paul, Minn.; P. C. LENZ and RAY ZENDER, both of Lenz Electric Mfg. Co.

Left to right: E. A. CAMPBELL, Dallas, Tex.; A. B. LANGSTON, Kellogg Switchboard & Supply Co.; ROY AMMEL, Elyria, Ohio; C. L. LISLE, Mansfield, Ohio, and E. W. MILLER, Kellogg Switchboard & Supply Co.

As I said before, there had been, from time to time, amendments introduced seeking to increase the minimum rate fixed in the Fair Labor Standards Act, but not very serious consideration had been given to any of these amendments until the 81st Congress. Immediately after convening of Congress, Chairman Lesinski of the Committee on Labor and Education, introduced a bill which would completely have rewritten the present Fair Labor Standards Act.

The effect of the act would have been to vastly increase the coverage by new definitions, such as "affecting commerce," and to remove many of the exemptions contained in the present act.

Left to right: H. F. NELSON and EDWARD GEORGE, both of Alphaduct Wire & Cable Co., and WILLIAM McCLUSKY, Rock Creek, Ohio.

The bill provided for an immediate increase in the minimum wage to 75 cents per hour, with escalator clauses that ultimately could have raised the rate to $1.00 per hour. In addition, the administrator would have been placed directly under the control of the Secretary of Labor, who, of course, is a political appointee, and the ultimate effect of such appointment would have been to make the administration of the act more or less political. The act would further extend the period of the Statute of Limitations from two years to four years, and last, but not least, its effect upon our industry would have been to repeal the 500-station exemption now given our industry under the law.

It was the plan of Mr. Lesinski to rush this legislation through the House, without any public hearings, with one day of debate. In furtherance of this plan, the bill was printed but was not released to the members of Congress, and its introduction was to be withheld until immediately before it was presented to the committee meeting called to approve the bill.

Fortunately, not only for our industry, but for the whole country, our able and active executive vice president, Clyde Bailey, discovered the existence of such a bill, was able to get a few copies of the bill, which, as I said before, were not even available to members of Congress. Mr. Bailey, sensing the danger, not only to our own industry, but all industry, and particularly the effect it would have had upon the economic life of all small towns and cities, and Carl Brorein, called a meeting of the Employment Relations Committee in Washington. As the danger became more apparent, it was deemed advisable to call in such of the directors of the association as were available, to assist in the task. Unfortunately, at the time severe blizzards and sleet storms were sweeping a great part of the country, so that a great many of the directors were not able to respond to the call, but a goodly number did appear, and others came in as fast as their personal situation would permit.

Mr. Bailey advised the secretaries of other trade associations of the provisions of the act, and requested a hearing upon the bill in behalf of our industry. The task force in Washington set for themselves the job of informing the members of Congress what was going on, and a week was spent in making personal calls, not only on every member of the House Labor Committee, but also members of the House and many of the U. S. Senators.

As a result of the resentment created by the attempt to steam roller this legislation through the House, without hearings, and without adequate consideration, a wave of indignation arose throughout the country, the House of Representatives itself, and even among the members of the labor committee.

So loud and vocal became the demands for adequate public hearings, that Chairman Lesinski was compelled to yield. He first planned a three-day hearing, but was finally compelled to hold hearings that lasted about 10 days. Due to the early demand of Vice President Bailey, our industry was the second industry to be heard, being preceded by the Western Union Telegraph Co. I had the honor to present the statement to the committee, and due to the groundwork that had been done by the members of our committee, and the directors of our association, we received a most courteous and attentive hearing. Practically all the members of the house committee were present, no hostile questions were asked, and many questions, helpful to our cause, were propounded.

(Please turn to page 106)

Left to right: L. J. DENNEY, Federal Telephone & Radio Corp.; E. R. HETZLER, Greenville, Ohio; WILLIS BARKER, Ottawa, Ill.; J. D. BIGGER, Clinton, Pa.; C. A. HAYNE and W. P. HOLLIS, Federal Telephone & Radio Corp.

First row: K. G. RANSOM, Wyoming Valley Equipment Co. Second row, left to right: EDWIN FRY, Hellertown, Pa.; HENRY MILLER and H. HIMMELBERGER, both of Myerstown, Pa. Third row, left to right: FLOYD JONES, Sterling Engineering Co.; HAROLD G. PAYNE, Dallas, Pa.; SEN. A. J. SORDONI, Sterling company; W. G. ARNOLD, Wyoming Valley company; DR. M. E. JOHNSON, Kingston, Pa., and F. M. MYERS, Marmon-Herrington Co.

DUTIES OF STATE COMMISSIONS

By LESLIE L. CONNER
Attorney
Oklahoma City, Okla.

WE ARE in the midst of a very trying and difficult time. The political outlook with reference to new and different kinds of laws affecting the telephone industry is not good. The soundings on the Potomac are unfavorable to us; the Poage Bill, the labor questions, the increase in costs of services of telephone companies come at a time when we do not have the rates or the money to meet the demand. The labor situation is precarious.

This talk requires the utmost diplomacy. Who are we to tell the regulatory commissions how it should be done and to make any suggestions or criticisms? We can do advance thinking about it however. This is the life in which he who hesitates is not only lost but also loses in the bargain. It always pays for people not only in the telephone business but all other forms of business to do advance thinking.

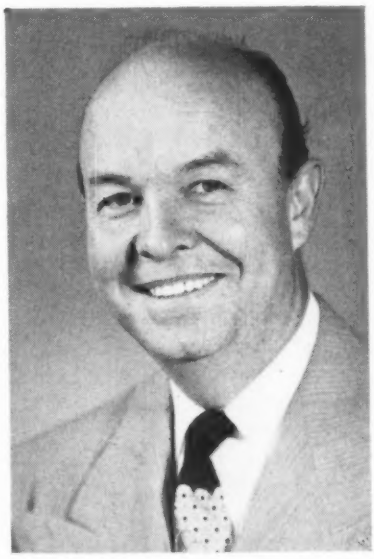
In the social world when you remember to take your hostess her favorite flowers or candy, she refers to you as a most "thoughtful" person. In war, the same thinking is called "strategy." In Washington they call it "diplomacy" and in the telephone field we call it "your program." Regardless of what you call it, advance thinking always has its own reward. In every day living, we are required to do advance thinking for if we do not, we are lost. Most of us do our advance thinking in connection with that rainy day, of our will and our insurance. In the telephone field we must do advance thinking in considering the regulatory commission which grants rate increases.

When Isaac Newton was struck on the head by an apple one day as he sat under the tree, he was able to figure out why the apple fell down instead of up because years before he had started doing some advance thinking along scientific lines.

It was the same kind of advance thinking that made Alexander Graham Bell conceive the idea of the first telephone. And the Independent men who followed him were not satisfied with the slow methods of communication of their day and they set their minds and energy to figuring out a quicker and better way of keeping in touch with the rest of the world. In keeping with most Americans, they had the mind to conceive, the understanding to direct and the ability to execute their dreams, so that they sprang full grown into reality. Every great invention was first just a dream in the heart and mind of a progressive scientist, and it was these thinkers who have given us dial telephones, radar and electronics and television.

There was never in the world two opinions alike and as one great American said, "Progress is always unfinished in America."

The telephone industry must grow. In the future you will find no easy road to success. If there were a royal road to success, it would have been under government regulation and control a long time ago. The telephone business can go to town because it has exactly what the towns need and want.



L. L. CONNER

There are 6,000 Independent companies operating 11,000 exchanges in the United States; 6,500 of these exchanges have less than 500 telephones; 5,000 exchanges are owned by 4,700 companies and have fewer than 250 telephones each. These figures make it clear that most of these exchanges are locally and individually owned. It is safe to say that many of these exchanges have not had an increase in rates since 1918. Nor do they have rates sufficient to meet their needs and present day conditions. Many are operating with rates that were fixed in 1930.

Telephone companies are more sensitive to changes in general economic price level than any other utility. Their rates lag behind the costs; postwar prices for expanson in the telephone field are double those of prewar days. Utilities cannot absorb increased operating expenses during this inflationary period.

The future belongs to things that can grow. The demand for telephones are the growing pains of the telephone industry. Utilities are the fastest growing industries in the postwar period, and have the largest margin for expansion

Telephone companies need MONEY, MONEY, MONEY; more money in the form of more adequate financing; more money in the form of easier credit to take care of operating losses; more money in the form of revenues from rates to take care of rising costs.

As was stated in the August issue of Telephone Engineer and Management, the telephone industry is the only utility, so far as we know, in which the cost of serving each customer increases as the number of customers increase. Charges are higher in a large exchange than in a smaller one. The telephone business differs in another way; it is the only utility that makes all of the investment, owns all the equipment and takes all the risks in supplying service.

There is no other business, to my limited knowledge, that is subjected to such intricate rate making cases. Such requirements are difficult for small businesses.

Private business differs greatly from the telephone business. In private business a man can do whatever he desires and has the money to do. He may make any changes he wishes and set his own price. However, in our business the rates are set by a regulatory body and must have the approval of the government agencies. Risks are moderate and profits are restricted. When the telephone business came under the jurisdiction of regulatory commissions, the great state government exercised its sovereign right of rate price regulation. The state government regulates the charges for the services rendered, the principle being that the government should be fair and reasonable in fixing the rate, both to the public and to the telephone industry.

All telephone companies are being compelled to convert their plants by installing automatic equipment. Many times, the capacity of the exchange must be doubled. Sometimes service and public relations are both bad.

We Independents have no "Ma Bell" to fall back on, nor do we have holding companies to call on for financial help. As "orphans" so to speak our only

remedy is the regulatory commission.

Is it possible to get increased rates to build plants and supply services?

Rates were first fixed by the legislature, then by public service commissions created by the legislature. The public service commission or corporation commission or railroad commission acts were based upon the old Interstate Commerce Commission Act, and were enacted in 45 states.

A Public Service Commission is defined as a legal administrative body, not a court, which has no power to declare or enforce any principle of law or equity, and is required to take facts as it finds them and promulgate only such orders as are strictly within the powers delegated to it by the law. Its orders are subject to review in the courts. In a sense it has subordinate legislative powers and is clothed with some quasi-judicial functions.

In the United States there are 45 regulatory commissions having jurisdiction over rates charged by telephone companies. They regulate the telephone industry and represent both the exchange owner and the subscriber. Texas, with the highest avererage telephone rates, and Iowa with the lowest, have no state regulatory commissions.

Left to right: CARL SPAID, Kansas City, Mo.; T. S. GARY, Automatic Electric Co.; T. S. EVANS, Honolulu, Hawaii; CARL SCHWOB and E. E. McCORKLE, both of Automatic Electric Sales Corp.

Left to right: E. T. KENNEDY, WALTER S. CLINTON and R. B. LYNCH, all of McCabe-Powers Auto Body Co.; C. H. KLEIN, National Telephone Supply Co.; E. O. DARNOLD and R. L. ADKERSON, both of McCabe-Powers Auto Body Co.

Thirty-one state commissions exercise certificate authority with respect to the service in those states, but in only 15 of these states is such authority applicable to mutual or cooperative companies.

Some of the states exclude mutual and municipally owned companies from the jurisdiction of the commission. These commissioners are public servants. They remain subservient to the will of the people. Their compensation ranges from $16,500 per year in New York to $3,300 per year in North Dakota. Some members are elected, others appointed by the governor. Commissions range from two to seven members and their terms are from two to 10 years. New Jersey, Michigan and Missouri are the three states that have women commissioners. These states that have women as members of the commission have taken a step in the right direction because women do more telephoning than men, and complete more calls. It is a good thing to have women commissioners because "to tell a woman is equivalent to tell-a-phone." In other words, we men, by having women commissioners, obtain a double benefit.

The commissions have a responsibility to the public, and they have a greater responsibility to the telephone industry. They must ascertain that telephone companies are getting rates necessary to give them the financial structure with which to grow. These commissions have no inherent power and all of their power must be found in the act or the constitution creating them. Their orders must be based on competent evidence and must be reasonable and just.

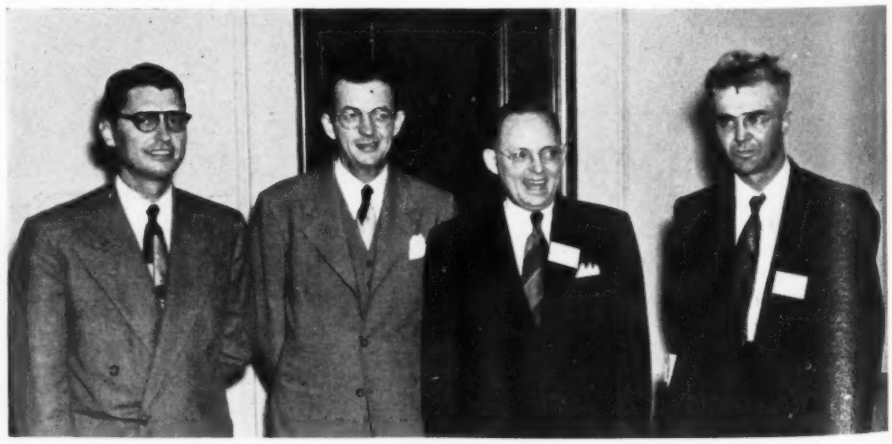
Most commissioners never built a line, operated a company or ever gave any telephone service. They have as such a body, regulatory power, and they should, as most of them do, do all they can to provide the kind of service the public wants and at the same time be entirely fair to the uitlity in rate-making.

They should approach the matter of rate-making in a spirit of fairness and with the desire to do justice both to the public and to the utility. The commission is a fact finding body, charged with the duty of administering the law.

We sell our service at prices which we do not fix, but which are fixed by the commission.

Public utility rate-making is a system of rights and dutie swhich constitute the law of public utilities.

More and more we are dependent upon a public regulatory commission



Left to right: G. W. ORRIL, N. S. ALLEE and E. F. SCHULZ, all of National Carbon Co., and NELSON TENTON, Medora, Ill.

which we must approach and convince that our cause is just.

Where statutory or constitutional limitations are not imposed upon the state commissions, it is not bound by formulae in the determination of what constitutes just and fair rates. In the making of rates it is conceded that public utilities are entitled to fair compensation for the services they render, compensation which is fair and reasonable at the time they are rendered. Unless regulation can prescribe such a rate under our present system, the only alternative is public ownership.

In the early days, there were three theories of rate making:

(1) Original cost.
(2) Present fair value.
(3) Reproduction theory.

Various theories have been adopted by both courts and rate-making bodies in their respective efforts to give constitutional protection to the investor in a regulated utility. Such an investor has generally assumed that either under the "prudent investment theory" or the "fair value theory" he would be accorded the means of earning a fair return in the light of changing economic conditions. A few state commissions have followed the prudent investment theory in rate making. These commissions are in Alabama, Arizona, Idaho, Louisiana, Nevada, New Mexico, New Jersey, Tennessee and Virginia.

A regulation rate order is of the same force as a legislative enactment and is subject to the same limitations.

Lawyers appearing before the commissions produce probative evidence; evidence that proves something. The orders of the commission are not final but may be reviewed by the courts. Their orders should have facts to support them and to withstand the power in review. Their orders cannot be arbitrary.

Rate orders and rate making are like clothes for children; they constantly change and the rate order that fits this year may be confiscatory next year. The utility, like Johnny, may outgrow that overcoat rate order. A rate once made is not supposed to last for all time to come.

No rule as to what is a fair return can be laid down to apply to all companies, what is fair to one would be confiscation to another. There are judicial precedents and cases holding that a fair return is one that induces people to invest in the company.

The first general postwar rate increase was filed by the Bell company in 1946. By 1947, that company had sought increases in over a dozen of the 48 states. In 1948 telephone rate increases were in "full flight" in most of the regulatory comissions.

The Bell companay has applied for rate increases in all of the states except Nevada. They have won rate increases amounting to 170 million dollars per year. Two hundred and forty millions of dollars in rate hikes are pending before regulatory bodies. Cases are now pending in 30 states including second and third round applications. Rate increases have been granted in forty-one states. Even now all the telephone rates lag behind costs, fair return and operating expenses. There are two significant overall features of this general rise in telephone rates.

The commissions, with few exceptions have listened to these well-founded demands and have responded with necessary rate increases.

In several cases, when the commission has refused to grant relief, the state courts on appeal have insisted that they do so. Opponents of telephone rate increases have failed to win a single major appeal.

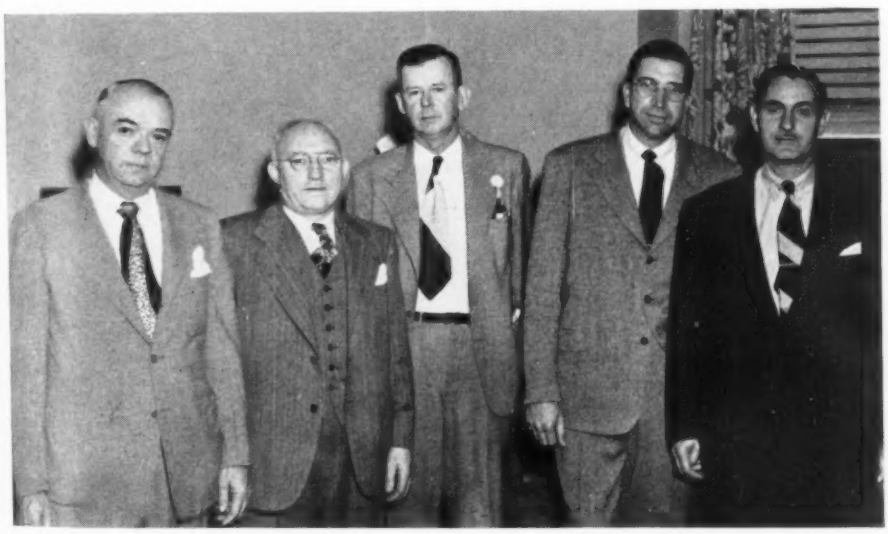
Courts and most commissions are alert to this need for increased rates. Some of these court decisions were caustic in their criticism of the commission in failing to grant rate increases.

In many court decisions on rate increases, it was found that after millions of dollars were granted in rate increases, it dwindled to actual thousands when taxes were paid. As taxes in the United States consume 30 per cent of our national income, we work 15 weeks out of 52 for the government.

Resistance to these rate increases has been evidenced by the many bills introduced in state legislatures to discourage commissions from granting such rate increases. What effect these may or may not have on the public service commission has yet to be seen.

Some of the companies file rate applications and ask for less than they should on the basis that "half a loaf is better than none." When a comparable company asks for a proper rate increase; the commission is at a loss to understand how one company

Left to right: J. J. ANDERSON, W. C. STRAUB, M. PROJANSKY, all of Holtzer-Cabot Co.; L. T. HEMMINGWAY, American Time Products Co., and V. DURBIN, Holtzer-Cabot.



Left to right: ELLIS WELD, Commercial Cord Co.; W. C. MOODY, Calculagraph Co.; T. J. TATE, Automatic Fire Alarm Co., DON WALKER, Shortsville, N. Y., and H. D. FARGO, JR., TELEPHONY.

can get along for one-half of what the other company is asking. In fairness to all telephone companies, we should look well to our full requirements before asking for that rate increase. Present regulatory law gives us no compensation for past deficits.

Rates to an exchange operator is what blood is to a doctor; a lawsuit to a lawyer, and a loan is to a banker. Rates mean the same to us as an election does to a politician. The government levies more taxes and demands more money; the only thing we can do is to follow suit. Like any other business, the telephone industry cannot stand still, it must either go forward or backward. Under this situation, there are three choices for the small companies.

(1) Obtain capital or credit from private sources, or

(2) Obtain an immediate substantial rate increase, or

(3) Obtain federal aid.

We know federal loans mean federal regulation, and we fear the Greeks even when they come bearing gifts.

In determining just and reasonable rates, the commissions assisted by the courts have, in some cases, defined and determined which rate theory they will pursue. This saves time and labor of the staffs of both the commission and the utility. Other commissions apply a new and different "yardstick" to telephone applications for rate increases.

Some of the present regulatory commissions have a system and procedure dealing with a telephone exchange rate case that are not geared to meet the present situation or demand, nor expedient enough to save all of these small companies from irreparable damage. To put it in the language of a mechanic, we have a "Model T commission in a Dynaflow age."

The time has come when costs have overtaken the average telephone company. Other private businesses have passed these costs on to the consumer, but not the telephone company. Since it is a regulated monopoly, it has waited until its affairs are in bad shape financially. Under this procedure in most states, the patient has to be on his financial death bed before the regulatory doctors can give him an ounce of medicine in the form of a rate boost.

Some public service commissions rule that rate increases cannot be granted before the service is improved. Which should the telephone company have first? RATES so it can improve the plants, lines and service; or should it improve the plant, lines and service and then get the rates? As one Commissioner said: "Which comes first, the hen or the egg?"

There is a growing need for regulatory commissions to realize the financial and service problems of practically all telephone companies and to examine these problems from a flexible standpoint. We do have an ever-changing economic condition in this country. It changes with political elections, with strikes and with fourth rounds of laborers' wages.

If there ever was a time when you needed to do something about your business condition and rates, it is now. When the government gives its hand and blessing and co-operates and promises competition with rural telephone legislation, and states that before congress adjourns, the country shall have a co-operative telephone program similar to the highly successful REA program, it is time that you did something to protect yourselves.

When a rate application is met by a complaint of poor service the matter can be met by granting the increase with the proviso that the complaint must be serviced and the service must be better or the temporary order expires under its own terms within 60 days. In this way the commission will do more good by giving the telephone company the money to increase the service and by raising the rates so that both the loss of money and the complaints will be remedied. More good is done for all than a denial of the request.

Some commissions have entered orders to protect telephone companies from losses occasioned by federal laws that may increase their cost of operation. In the event this law becomes operative in their state each telephone company has the authority to increase its rates to meet this additional cost occasioned by the new law. This is a forward step and should be copied by some of the other state commissions.

The telephone business has com-

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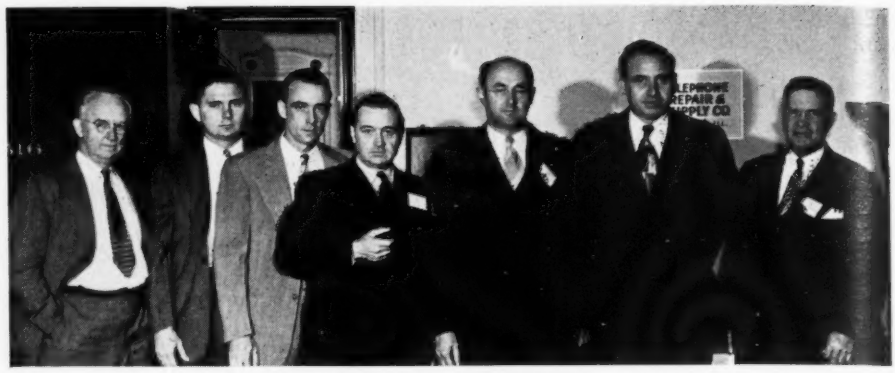


Left to right: H. W. PIKE, Springfield, Ill.; A. J. SCHELL and D. B. ELLIOT, both of W. M. Bashlin Co.; ALBERT WILKINS, Telephone Repair & Supply Co.; S. L. HENRY, Fulton, N. Y.; O. C. BUCK, New Richmond, Ind., and DANIEL McNULTY, Telephone Repair & Supply Co.

Left to right: R. M. SANDERS, R. J. KELLER and MISS L. B. HERRMAN, all of Runzel Cord & Wire Co.; J. I. KENNEDY, Freeport, Ill., and W. L. RUNZEL, Runzel Cord & Wire Co.

Left to right: A. R. TIEFELD, Copperweld Steel Co.; KENNETH GILLETTE, James R. Kearney Corp., and M. R. HOLMES, American Structural Products Co.

MEETING THE FINANCE PROBLEM

By C. C. PEARCE
General Manager
Farmers Telephone Co.
Riceville, Iowa

WHILE our subject at this time is, "How a Small Company Met the Finance Problem," I feel that we must deal not only with finance, but with its many related problems. In fact, every phase of telephony is so directly related to this problem that the successful operation of a telephone business in its entirety must be given careful consideration and dealt with as an integral part of the finance problem itself.

Pending legislation may open a new approach to the finance problem relative to small telephone companies, but since the discussion of tried and true methods involves many difficulties, I certainly will not attempt at this time to discuss the vices and virtues of an entirely new and untried method.

I confess I am not an expert on the subject of finance. My remarks at this time are based on observation and experience. I would like to relate something of the history and operation of the small company with which I am most familiar, and perhaps in this way I will be able to give you somewhat of a complete picture of "How a Small Company Met the Finance Problem."

The Independent telephone industry is today divided into two segments. There is that segment which operates large groups of exchanges, in each exchange operated by such groups is a manager, and if it is a large exchange the local manager may have a complete staff of specialists—plant superintendent, wire chief, chief accountant, etc.—each having other employes responsible to him, and the head of each department in turn responsible to a general manager whom he may only occasionally see as he perhaps has an office in a large city many miles away, but through the use of the mail and the telephone he is able to dictate the general policy to be carried out by the local manager. This general manager is responsible to the board of directors and they in turn to the stockholders.

This, with variations, is the makeup of the large operating groups. In such an organization no individual has complete authority to give a definite answer unless it is in the rule book, and oftentimes many individuals must be consulted before a conclusion is reached. It may be many weeks before an answer is available and when it is available it will probably be passed on to the customer by an individual who has had nothing whatever to do with the decision.

Under such a system, employes are protected by the size of the company. When such a company sees fit to increase its rates, an irate subscriber cannot point his finger at an individual in the local office and say, "you are responsible." Personally, I envy and admire the advantages of such a system, and there are many excellent large companies who have built a marvelous business with excellent service, and the finest of public relations under such a system.

Not all companies are fortunate enough to have such a structure back of them, as there are thousands of companies in the United States consisting of one, two or several small exchanges where the chances are pretty good that each employe is known personally to nearly every subscriber in the exchange. Here, Grandma Schneeberger knows each operator by her first name. Here, the lineman knows every subscriber, personally, the kids and their respective grades in school. And here, is where Farmer Jones, living out on the roaring 19 line, becoming disgusted with the power line noise, just stops in at the telephone office, puts his muddy boots up on the manager's desk, puffs his pipe a few times and says, "Bill, when in the blank-blank are you going to do something about that noise." Right here is where Farmer Jones knows he is talking to the man who can give him the answer.

C. C. PEARCE

The latter is the kind of company which I operate, where the individuals are the company. In assuming the management of our small company in the year 1940, had I realized the many perils to be faced, it is doubtful whether I would today be connected with this great industry. Looking back down the steep hill I wonder how we ever made the grade.

The office was located in the upstairs of an old building, a two-position magneto switchboard had been installed the year I was born, 1909. The cable plant had been constructed at the same period, most of it located at the top of 35-foot poles. Electricity had reached the community since and the electric wires were a few feet below the cable. The town had long outgrown the capacity of the cable, as most of it was working on split pairs.

In addition to this the company also operated a smaller exchange about 10 miles away. The subscribers there were served by a 20-line switchboard somewhat older than the one previously mentioned which was located in a house. This board was operated by Pearle and Gertie who should have been retired when Henry Ford quit making Model T's. The 180 miles of pole line in the two exchanges consisted of grounded circuits, rotted poles and rusty wire. The telephones were all of the old long necked type and some, the real old double box type built for wet batteries.

The total gross income in 1940 from these two exchanges was $10,309 with an investment of $30,348 badly depreciated. The rural and residence rate was $1.25 and the business rate $2.00. It is not difficult to see that here is where the finance problem began to present itself.

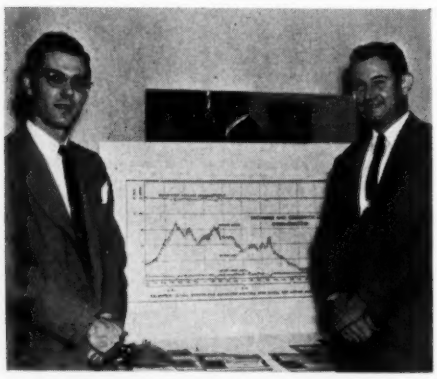
At this time, I discovered a couple of guide books, TELEPHONY and Telephone Engineer, which proved invaluable. I read them diligently and found that many of my problems had long since been solved by others. These journals deserve much credit as they formulated my plans and my thinking at this time. I firmly believe that without the encouragement and help offered by these publications and their fine editors, with whom I have long since become acquainted to the extent of calling them Pete and Ray, that I would have accomplished little. Pete Reno of TELEPHONY and Ray Smith of Telephone Engineer have won my undying admiration and gratitude, and if you aren't personally acquainted with them

make it a point to meet them at your earliest convenience.

In 1945, the smaller exchange was converted to unattended dial with the plant entirely new, the lines were metallicized, the open plant in town changed to underground tape armored cable, a new building erected, dial equipment installed and every subscriber, home and business was equipped with a new dial handset of the latest model. Power line noise had been terrific, and as all lines were changed from grounded to metallic circuits the day the exchange was converted to dial operation, the result was comparable to changing from a yellow flame candle to modern fluorescent lighting.

This cutover to dial operation was featured in the Riceville weekly paper with headlines and a complete writeup of the history of the old exchange and a story of the new system; congratulatory ads were run by most of the merchants. It is interesting to note that today with double the old rate, we serve 60 per cent more subscribers in this little New Haven dial exchange, and that the toll revenue has not doubled or tripled, but is five times greater than under the old system.

In June, 1947, the town of Riceville was converted to common battery service. A new underground cable system had been installed, most of the rural lines out of the exchange had in the meantime been metallicized, a new building erected and equipped entirely new, and all town telephones changed to the latest type handsets. Again the local weekly newspaper favored us by devoting nearly one entire issue to the fine improvement in telephone service that had been brought to the community.



J. R. WILLIAMS (left) and G. J. BERRY of Electric Products Co.

These improvements with all the problems attendant thereto were not brought about overnight, but the trade journals had constantly preached good service and good rates, and these accomplishments were the result of consistent effort to that end.

It would be nothing but boring to give you all the details of these projects, but I will mention a few that may be of special interest which directly or indirectly affect the finance picture in any company. As you know, it takes money and lots of it to carry on such a program, and in the telephone industry as in every other business, it is the consumer who ultimately pays the bill, therefore, it was necessary for us to constantly increase our rates to keep pace with the investment and improved service.

Left to right: ROY LICHTER and T. E. THOMPSON, both of Ansonia Electrical Co.; W. F. CORMAN, Atmore, Ala., and A. P. LUNT, Ansonia Electrical Co.

Left to right: PHILIP ROUDA, Telephone Advertising Institute; N. T. VIDEAN, Bellevue, Ohio, member USITA Advertising Committee: EILEEN KILEEN, Telephone Advertiisng Institute; CARL SPAID, Kansas City, Mo., and VERNE B. CLARK, Pekin, Ill., both members of the USITA Advertising Committee.

Our rates on various classes of service have been increased several times since Jan. 1, 1941, in amounts varying from 25 cents up to as much as $1.00 at a time until the rural and residence rate is now $2.50 and the business rate $4.00 or just double the Jan. 1, 1941 rate. The amount of the investment has increased over $60,000 and the gross income has gone from $10,309 in 1940 to $26,692 for the year ending Dec. 31, 1948. It is interesting to note that income from rental in 1940 was $8,559 in 1948; eight years later it was $21,461, an increase of nearly $13,000.

Another figure that may interest small companies looking for additional income is the revenue that may be derived from the telephone directory. Our book was formerly published by a party who very generously furnished us with enough books for our subscribers without charge. We now sell our own ads and have the books printed locally. Last year we sold advertising in the amount of over $1,000, while the cost of printing was less than one-fourth this amount. If this method is not suitable, I would suggest that you contact one of the several reliable directory companies whose services, I am sure, will fit your own particular needs and will be most profitable to you.

While many improvements were made by reinvesting income, it was necessary in 1945 to borrow $25,000 to finish projects then underway. First, we contacted the local bank and found that it was unable to handle the full amount of the loan because of its small capital structure, but it was most

(Please turn to page 114)

(Advertisement)

STROMBERG-CARLSON SCORES *Again at* USITA *Convention*

DID you see the Stromberg-Carlson exhibit at the USITA convention in Chicago?

Lots of telephone people did. If you did, too, you are no doubt joining the thousands of Independent telephone men and women from all over the country who are echoing the praises of the exhibit as they return to their homes. Without question, the Stromberg-Carlson exhibit was one of the most interesting and complete displays of fine telephone equipment presented at the convention.

Practically every phase of the telephone art was represented in the displays that ranged from attractive subscriber station apparatus and supplies, to finely engineered central office switchboards. To most telephone people these are commonplace pieces of equipment. However, the Stromberg-Carlson display brought into prominence the importance of top quality equipment in a strikingly interesting manner.

There were certain pieces of Stromberg-Carlson equipment in particular that caught this observer's eye. Each of these units separately, and as a group, are going to have a profound effect on the engineering and operation of the Independent telephone industry. No doubt the main reason these particular units stood out is because they represent a practical solution to equipment problems back home.

Unit Construction Power Board

The new Stromberg-Carlson unit construction power board is a practical solution to the problem of power control. Here is a board that is easily adapted to any type or size dial exchange. When the exchange grows, the power board can grow, too, merely with the addition of the required units. The same features that make easy expansion possible also simplify maintenance operations.

The unit construction of this new power board is based on functional lines. This means that particular functions of a power board are grouped on individual panels. As a result, engineering and installation can be handled on the basis of complete units, rather than piece-by-piece. If and when changes, repositioning, or expansion are desired, one or more units can be slid out or moved, and a new unit inserted in its place.

An outstanding feature of the board is its "safety front." All of the heavy current circuit protection is provided by circuit breakers. This is a forward step away from old style exposed cartridge fuses, clips, and knife switches. The only fuses on the face of the board are the usual target fuses found in conventional supervisory circuits. The "safety front" on this power board will mean a lot from the standpoint of increased safety and improved maintenance operations.

Roughly speaking, the board can be divided into two main sections, namely, the supervisory section and the battery and generator control section. While the units of the board on display were grouped in this manner, they could also be arranged in any other manner desired by the operating company.

Typical of the panels in the supervisory section are:

Tone Panels. Usually, two tone panels are advisable. However, an installation could start with one and leave the second panel blank. When required, the second panel could be ordered from the factory and inserted on the board in place of the blank panel. When two panels are installed, the tone circuits can be switched manually from one panel to the other for maintenance reasons.

Common Supervisory Control Panel. Supervision of the entire board is grouped on a single panel, known as the common supervisory control panel. This provides common alarm signals for the XY switching equipment and power board. The power board alarms are in addition to various alarms located on individual panels. Any alarm can be provided to suit the dial equipment with which the power board will operate.

The usual power board alarms are:

High and low voltage.
Supervisory fuse alarm.
Generator failure alarm.
Heat coil common alarm.

These alarms are arranged to provide both visual and audible signals. The audible signal circuit is under the control of a non-locking cut-off key. This feature enables cutting off the audible signal until the condition causing the alarm is cleared.

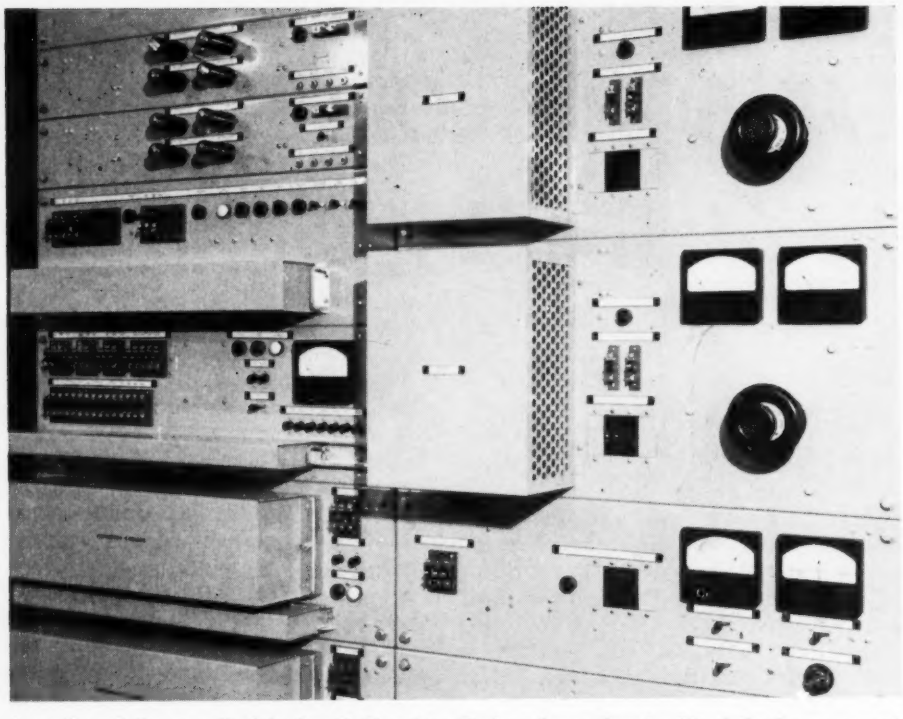
To simplify maintenance operations, a toggle-type key is provided to connect the high and low voltage alarm relays to a calibration circuit on the discharge panel.

Ringing Control Panel. The ringing control panel contains all of the smaller branch fuses required in the various ringing circuits. Also, a test voltmeter is permanently installed to simplify checking the voltage of the superimposed battery used with the ringing current.

Interrupter Control Panel. The new Stromberg-Carlson interrupter is a well-engineered unit whose rugged, simple construction will give years of trouble-free service. The interrupter panel can be installed either singly or in duplicate. The duplicate unit has worthwhile advantages from an operating standpoint. In the event of a failure of the primary power of the exchange, an automatic transfer is made to the standby interrupter which is dc powered from the exchange batteries. Should a failure of the standby interrupter unit occur, a power alarm is given to signal the maintenance personnel. This transfer from one interrupter to the other can also be made manually, if desired, to facilitate maintenance operations.

The interrupter, as well as the interrupter springs, is jacked in on the panel. The interrupter springs are adjustable in relation to the individual cams. Motor units are easily replaceable. When desired, two shafts can be provided to turn cams at different speeds. The slow speed shaft has space for six cams and the high speed shaft accommodates 22 cams.

Battery and Generator Control Section—Battery Distribution Panel. A primary feature of the battery and generator control section is the extensive use of distributing circuit breakers. Application of these modern cir-



A section of the new "safety front" Stromberg-Carlson Power Board. All of the heavy current circuit is provided by circuit breakers. Individual panels are used throughout the board.

cuit protection units to a telephone exchange power board makes possible a "safety front" as discussed previously. From the face of the board, the battery distribution panel appears as would a group of well insulated toggle switches.

Motor Generator Control Panel. One or more motor generator control panels can be provided as required by a particular installation. By changing an ammeter and adding the required circuit breaker units, the board can be arranged to handle 25, 50, 100, or 200 ampere output. Again, this feature highlights the flexibility that is to be found in the Stromberg-Carlson board.

Also located on the motor generator control panel is a magnetic overload circuit breaker to protect the generator circuit. A field rheostat is used to adjust the generator voltage, and an ammeter and voltmeter are provided to indicate the generator performance. To complete the panel, a visual and audible alarm indicates when the circuit breaker is opened.

Battery Discharge Control Panel. Battery discharge protection can be changed simply by installing additional circuit breakers and changing the size of the ammeter located on the battery discharge control panel.

The calibrating circuit, mentioned previously, is also located on the battery discharge control panel. The calibrating circuit can be switched to check the adjustment of the high and low voltage relays merely by operating the calibrating key on this panel with an associated key on the relay panel. With both keys operated, the meters and rheostats are cut in for immediate testing. This feature eliminates the need for carrying special test boxes to the board with all of the subsequent connections, contact blocking, resistance settings, etc.

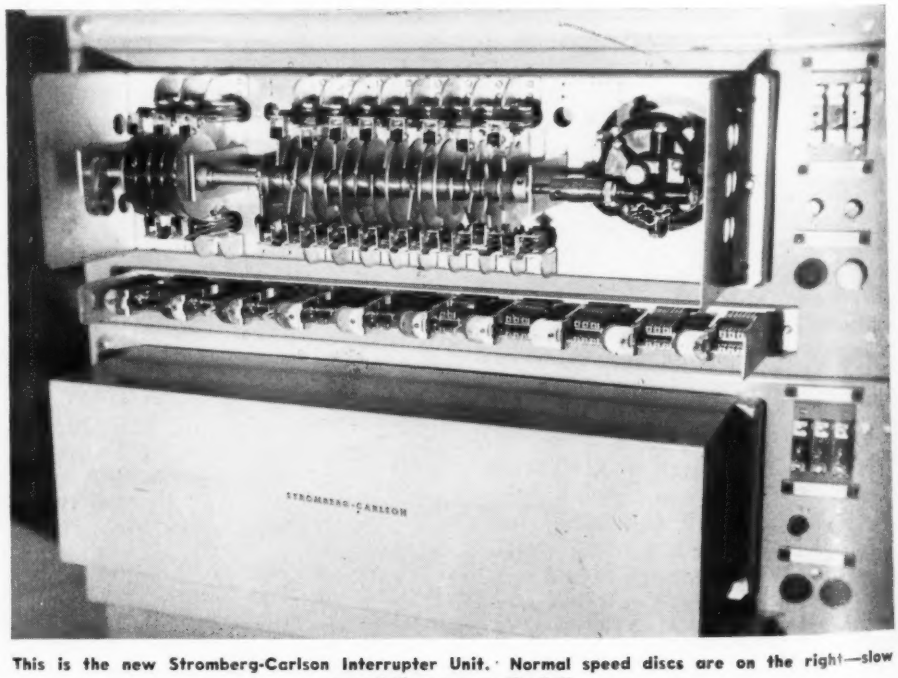
Automatic Paralleling Control. Automatic paralleling controls can be provided to control two or three motor generators. Usually, one of the generators, which is manually controlled, can be adjusted to carry a fixed portion of the exchange load. If and when the connected load exceeds this limitation, a second or third generator is started automatically to provide the additional power. This automatic feature is under the direct control of the current drain of the connected load. Another important point to know about Stromberg-Carlson's automatic paralleling control is that each motor generator control switch may be operated manually "on" or "off" or set to operate automatically in a pre-selected order.

End Cell Switch Control Panel. The end cell switch is designed to cut in additional battery cells when the charge of the main battery (usually 23 cells) drops to a voltage that will not permit normal operation of the exchange equipment. The operation of the end cell switch is controlled by a voltage relay which is adjustable with the calibration circuit mentioned previously. An alarm circuit is provided to indicate when the end cell switch is operated in the emergency position.

In addition to the practical features found on each individual panel, there are a number of important construction features which are included in the completed board. The features common to the board are:

Visual Signals. Visual signals are used with all circuit breakers and fuses on the board. The alarms remain until manually released, or until the trouble is cleared.

Panel Sizes. The standard panel is 30 ins. wide, and is furnished in heights of 5, 10, 15, or 20 ins. All of the panels are finished in a light grey



This is the new Stromberg-Carlson Interrupter Unit. Normal speed discs are on the right—slow speed discs are on the left.

enamel; a welcome change from the old-fashioned black power board.

Framework. Use of a sturdy unistrut framework and clamp nuts simplifies making changes or addition to the board.

Terminal Blocks. Terminal blocks are installed on each panel and are used to inter-connect on the panel and to connect the panel to other equipment. This feature reduces the amount of cabling required in back of the board.

Cable Slats. Cable slats are adjustable to any position the installer prefers. The result is a simplified wiring lay-out.

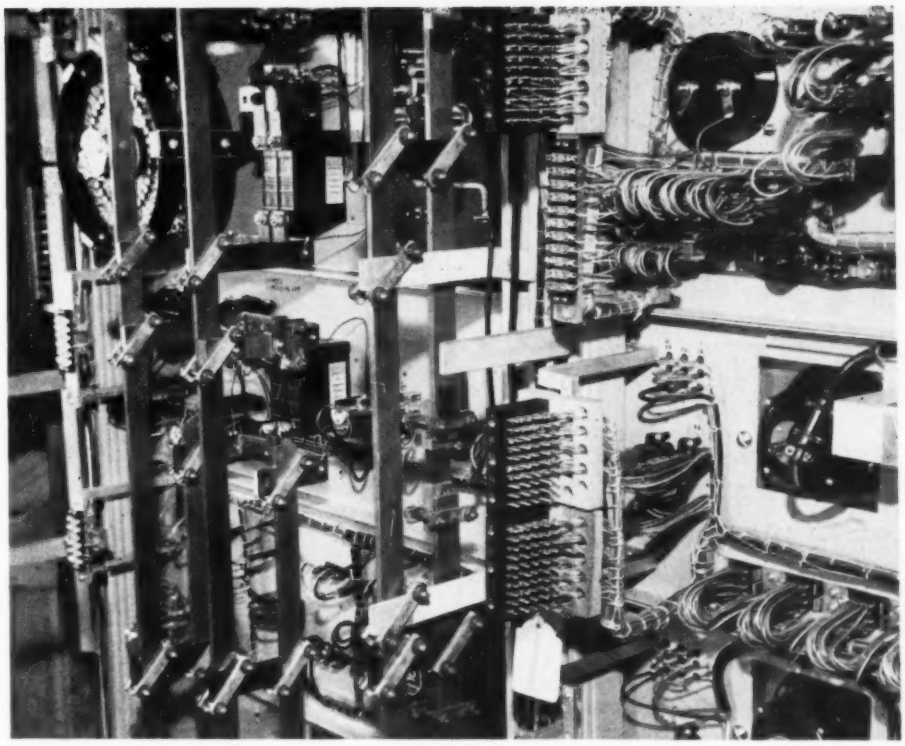
Electrical Connections. A bare ground wire is used throughout the board, the same as in a Stromberg-Carlson exchange.

All main leads are terminated on solderless lugs.

Lock-tite connectors are used on all ac power connections that connect any equipment to the board.

A convenience outlet, on the rear of the board, can be placed in the most suitable location.

Buss Bar Clamps. The new Stromberg-Carlson buss bar clamps do not require drilling of the buss bar stock. The capacity of any or all buss bars can be increased simply by loosening the clamps and sliding in additional buss bar sections.



Here is a view of the back of the new power board. Interesting developments are the new buss bar connectors and the terminal strips on each panel.

Convention Visitor Observes Tests of XY Switch

In another section of the Stromberg-Carlson exhibit, the familiar XY switch was being put through the final operating test as used at the factory. These tests were made in conjunction with related switching equipment. Included were tests for:

Short, cross, ground.

Operate and non-operate current characteristics.

Proper tolerance in adjustment of magnet armatures.

Dial pulsing action, etc.

Upon completion of the final tests, each XY switch is packaged separately in a substantial corrugated carton, and sealed. At cut-over time, or whenever desired, the carton is opened, the switch is slid into the equipment frame, and the XY is ready for service. That's all there is to it. No more testing is needed because the final tests were made at the factory.

XY Frame in Operation. A few steps away from the final test bench was a full-sized XY frame in operation. On this standard frame, taken off the factory assembly line, were mounted two No. 1243 telephones. Thus, the convention visitor had an opportunity to test the XY frame in action. Also, he had an opportunity to observe that XY switch units could be moved at random between the finder and connector positions. In actual exchange operation, this kind of flexibility has many advantages as switches can be moved quickly to wherever an unusual traffic load may occur. Out-of-service-time can be reduced to a minimum because a switch in trouble can be replaced in a matter of seconds. Repairs can be made at the convenience of the maintenance personnel. These are items that reduce operating costs, and improve customer service.

XY Switch Offered for Test by Operating Companies. Many telephone people looked at XY switches at the convention. Many more have read and heard about this fine unit of switching apparatus. Now they can go one step further. Stromberg-Carlson had a portable life-test box in operation at the convention, and has offered to send this box and XY switch to the home office of any operating company. On this box, XY switches

After final tests at the factory, the XY switch is ready for service in the exchange.

can be tested continuously through a complete action or by individual actions. The precision operation of the XY switch as it goes through its paces is a pleasure to see. Through this offer the switch will be available for inspection and testing by managers, engineers, and operating personnel.

Robot Plays Host in Switchboard Exhibit

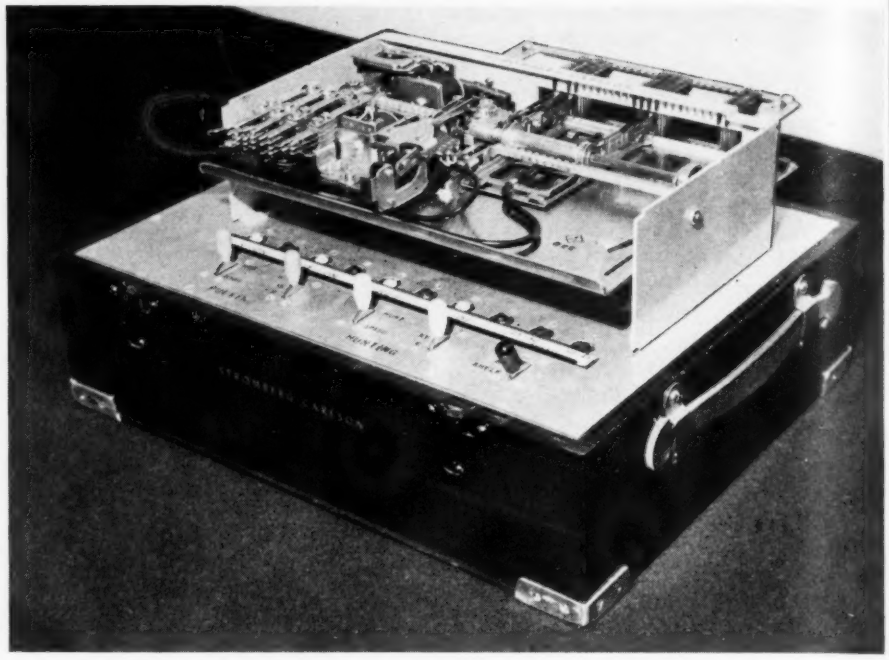
In the switchboard exhibit room, a handsome, superbly tailored robot played host in a charming manner. He cheerfully greeted all guests by name, and answered questions regarding the various modernly styled switchboards. He literally read the minds of the visitors as to what they wished to see, and arranged to spotlight the particular Stromberg-Carlson switchboard of interest to the guest.

He was especially busy pointing out the modern styling of the attractive PBX switchboards. These new Stromberg-Carlson cord and cordless boards will complement the appearance of any modern office. The selected woods in two tones, sun-tanned face and keyshelf, and rich fittings make these cabinets the most attractive now being offered. The circuits installed in these boards are modern in every respect, including supervision for toll dialing in the No. 121 cordless board.

Telephone Exhibit Offers Sales Ideas

As would be expected, the display of Stromberg-Carlson telephones was complete in every respect. There was an interesting display showing how the No. 1248-W Handset Desk Telephone can be converted into a No. 1243 common battery telephone in a matter of 20 minutes' time.

A waterproof telephone sat peacefully in a goldfish bowl filled with water. Any visitor, in a hurry, could reach in, lift the receiver, test the telephone, and wash his hands at the same time. (Many of them did just that.)

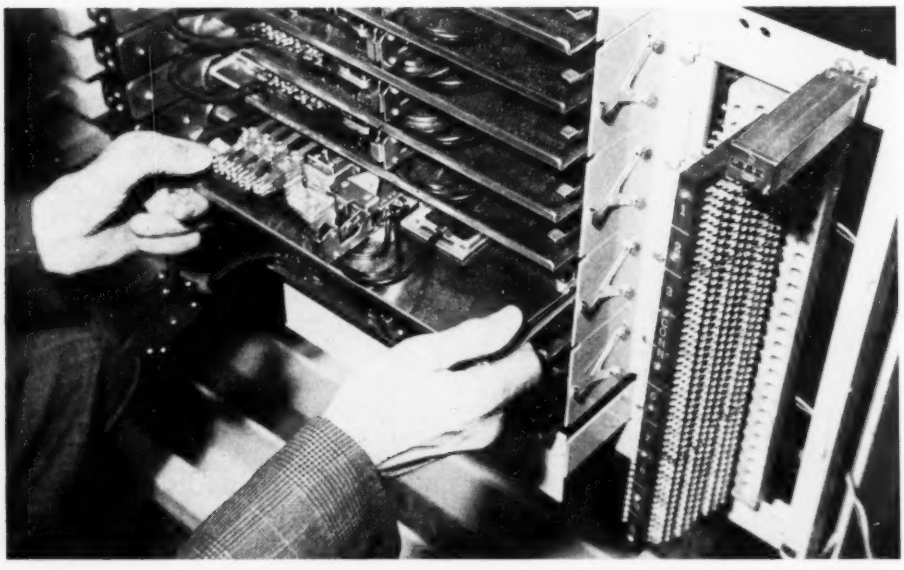


Stromberg-Carlson will send this life-test box and XY switch to any operating telephone company in the United States or Canada.

Another section of the telephone display featured Stromberg-Carlson Multiple Line Key Turret Equipment and convenience systems. These units answer the needs of a large number of customers who do not require the PBX switchboard. Any operating company interested in increased revenue and service to its customers can get complete information from the Stromberg-Carlson representative.

Stromberg-Carlson Dial Highlighted. Rounding out the presentation of equipment familiar to all telephone people was an interesting display of the Stromberg-Carlson dial. A huge dial responded with interesting pictures in color describing the features of the dial, as the visitor turned the dial of a standard No. 1243 telephone.

One of the latest improvements is an easily removable section of the efficient dust cover on the underside of the dial. Without disturbing any connections, the section can be removed, making all vital parts available for maintenance operations. When the adjustments are completed, the removable section is snapped back in place and the effective dust seal is re-established.



As easy as changing a pair of shoes—slide out an old XY switch; slip in a new one—or move any switch to any location in the exchange. This is the kind of flexibility that is available to the operating company using XY equipment.

Stromberg-Carlson Ideas Offer Food for Thought

From the standpoint of appealing showmanship, sales-minded operating companies could profitably use a good many of these Stromberg-Carlson exhibit ideas back home. That's because a good way to stimulate sales of equipment and service is to stimulate interest in the mind of the telephone-using public.

Looking back once again, both at the equipment on hand and the way it was presented, a confident feeling prevails in the mind of the convention visitor—a feeling that Stromberg-Carlson equipment will fill the bill in every respect by giving excellent service at all times, everywhere. That's a fitting tribute to the finest equipment available to the Independent telephone industry.

Yes—Stromberg-Carlson scored again at the 1949 USITA convention in Chicago!

APPLICATION OF CARRIER

By C. C. DONLEY
Chief Engineer
Lincoln (Neb.) Telephone & Telegraph Co.

LIEUT. COL. GAITHER of the Army, in a recent article on propagation of radio waves quoted: "If it's going to happen, it's going to happen; if not . . . it sometimes does anyway."

"From the standpoint of proving it it, carrier equipment sometimes has this peculiarity. If it's going to prove in, it is going to prove in. If not, it sometimes does anyway. Certainly we, in the Independent industry, should be carrier minded. When a circuit is required and facilities are not available, we ought not to overlook the possibility and perhaps desirability of using carrier.

This practical application of carrier is a big, broad and long subject. I am rather glad this is so, because it may afford me a much needed alibi. If I should fumble, I can claim that I'm simply in the same position as the sprinter who when asked to run the 100 in nine seconds said he could do so if it were not for the longness of the distance and the shortness of the time. When I complained back home of the longness of the subject and the shortness of the time, both of my friends immediately told me not to cuss the shortness of the time, and one of them added that if anything is to get me by on this job it will be the shortness of the time. In any case, I am convinced that only Chairman Miller, his plant committee, and Burden and Behm in particular, would dig up a subject like this and then ask a traffic man to talk on it.

And now with a bow to the boys with the slide rules who design carrier and then see their designs carried out in darn good equipment, what I will say here is intended to interest those persons who don't give a tinker's damn about modulation products, side bands or the square root of —1, but do at times have to decide how circuit facilities are to be provided.

Carrier is no longer a youngster. It is now, and has been for some time, entitled to vote. I know of a number of systems which are now in service and have been for the last 25 years. When carrier first showed up, it was new and untried. Accordingly, to the prudent a rather short life was assigned—something on the order of 10 years—resulting in a depreciation charge of 10 per cent to maintain the equipment. We wound up with an annual charge figure of 22 to 25 per cent on carrier as against 17 to 18 per cent on open wire. Some companies are still using similar figures.

I submit that in the light of experience we ought to turn these figures around. Certainly we should do so when making an engineering cost study in which we hope to arrive at a sound conclusion with respect to the use of carrier versus other types of facilities. In this connection, just as we should charge against carrier valuable central office floor space which the carrier might occupy and which will relatively soon be otherwise needed, so too, we should, for example, charge against open wire the value of the entrance cable pair and the value of the pole line wire positions if either or both of these plant items are now or soon will be otherwise required. When all of these items, and such other items as may be properly chargeable, are taken into account, we may be surprised to find that, often, carrier which will not prove in does prove in.

C. C. DONLEY

As far as I know, carrier can be used to provide any ordinary telephone service circuit—toll, trunk and signal circuits, and of course, subscriber and rural service. It's being used today in a number of places, and there seems no reason why use of carrier in this field ought not to continue.

What I am talking about is the ordinary telephone carrier. If we can, we should start out with what I call Channel No. 1, using frequencies from 4,000 cycles to around 11,000 cycles. Purchase this type of equipment initially with the understanding that additional equipments may be stacked on top of the first channel and connected to the same physical circuit to derive additional carrier channels. If we can follow this procedure then, by the time we need to place the higher frequency equipment, we will be sufficiently conversant with carrier so that we may recognize and take into account the fact that the same problems we have with the first channel frequencies are somewhat more severe on the higher frequency channel.

With respect to carrier cross-talk on open wire leads, there is, of course, no problem when the lead carries but one system. A pole pair or a bracket pair may be used, although the wet weather effect will be greater for a carrier system on these positions than if carried on pins 1 to 4 or 7 to 10. What happens in the way of cross talk if each of two pole pairs or bracket pairs have carrier on them, I don't know. Cross-talk will not be excessive if one carrier system is operated on pins 1 to 4 and one on pins 7 to 10 almost regardless of the length of the system. Up to 25 miles and perhaps slightly further, carrier systems may be operated on each circuit on pins 1 to 4 and 7 to 10 without carrier transpositions.

This assumes that the carrier systems all point in the same direction frequency-wise and that the system levels are approximately the same and that the telephone transposition system on the lead is a reasonably good one. Remember operation of carriers at different levels increases the cross-talk coupling by the db difference in level. An east and a west terminal working in the same office and used for systems through the same cable or on the same wire line will increase the cross talk coupling by approximately the carrier db equivalent of the physical circuit. Keep them pointed in the same direction and keep the levels the same.

When more than one carrier is placed on a pole line, inter-carrier cross talk is apt to result if the wires are not kept relatively free from trees.

Entrance cables can and sometimes do cause cross-talk. If and when that happens, we may load the entrance cable or place auto transformers at both ends of the cable. Long intermediate cables would require similar treatment. With up to a mile of non-loaded cable—assuming that we have sufficient transmission margin to do so—I wouldn't, initially at least, worry about the effects of entrance cable. If we go much beyond one mile and want a high grade circuit, then I would put in auto transformers. If the circuit is just used for ordinary traffic, and I could stand a

two-mile or more length of cable from a transmission standpoint, I'd try it without even auto transformers. If we find carrier cross-talk in the cable, we can put in the auto transformers—one in the office and one at the cable pole on each cable pair carrying a circuit on which carrier is superimposed plus those, if any, required.

The auto transformer can be secured in a weather-proof case with suitable pole mounting fixtures. I would get the best advice available before I decided to carrier load cable. Turn that over to the slide rule boys also. We may find that it is the only way out if we have especially long entrance cables, or if we must make use of the higher frequency channels. I'd look pretty well before I leaped on this cable loading business. This is particularly good advice for larger companies who have just about filled up their carrier facilities. To relieve this situation there will be available, before long, a multi-channel equipment which may provide as many as 12 carrier circuits on one physical circuit.

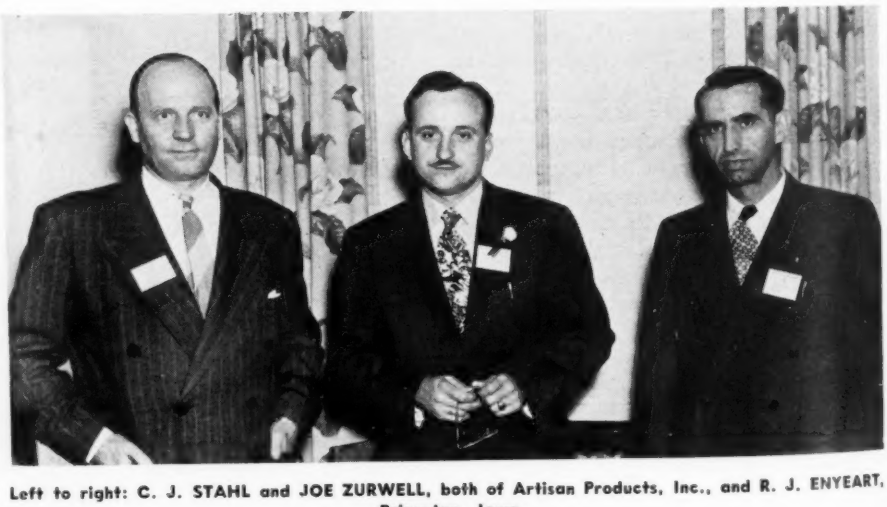
I am sure you read with a great deal of interest as I did about the six-circuit four-wire carrier, using frequencies up to 50,000 cycles a second, placed in service in California. I don't know of any carrier loading today which will pass frequencies above 35,000 cycles. Had this gentleman had his cable loaded even for 30,000 cycles carrier—or as I call it, Channel No. 3, he would have had to unload his cable or give up a part of his six-carrier circuits, assuming, of course, that non-load pairs were not available in the cables concerned.

Carrier may be used on iron wire provided we have a reasonably good iron circuit. The carrier loss at 9,000 cycles of No. 109 iron wire is approximately three times the voice frequency loss and about nine times the carrier loss of No. 104 copper. It follows, therefore, that the length of iron circuit, assuming an average entrance cable length, over which carrier can be operated without an intermediate carrier repeater is relatively short. In order to specify a definite length, it is necessary to know the output level of the carrier equipment and its receiving gain as well as the allowable loop gain. I should think that the limit would be approached with an iron circuit around 15 to 20 miles in length.

In mentioning the uses of carrier, I omitted one use which has been of some importance to certain companies. In this case, they have experienced noise on the physical circuit due to grounded dialing legs. When the dialing or signaling legs, now furnished by all manufacturers of carrier equipment who sell to the Independent field, were sub-

Left to right: E. E. ELWERT, Galesburg, Ill.; P. C. LENZ, Lenz Electric Mfg. Co., and W. C. STREHL, Suttle Equipment Co.

Left to right: W. W. PONSFORD, Graybar; DON BRICKLEY, TOM BROWN, and RAY BAUMGART, all of Motorola, Inc.



Left to right: C. J. STAHL and JOE ZURWELL, both of Artisan Products, Inc., and R. J. ENYEART, Princeton, Iowa.

Left to right: P. H. SHERRON, Sherron Metallic Corp.; C. W. GOTTRY, Columbia, Mo., and M. V. BARASCH, Sherron company.

stituted for the grounded composite legs, the noise condition was cleared up. Almost in every case a quiet carrier circuit can be obtained even though the physical on which it is worked is so noisy that it is practically unusable. The type of noise referred to is that due to induction from power lines.

Carrier equipment is easily installed and presents no maintenance problems which can not be handled by the ordinary telephone man. One company mounts a carrier terminal in a box and brings the connections out to three pairs of binding posts plus the 110 ac supply plug. These units can be loaded into a car, taken to a small exchange, placed on the floor and connected into service by running three jumpers, in-out and 20 cycles. A few more wires are needed for dialing or common battery signaling and supervision. These carriers can be quickly and easily placed where and when needed and can be readily shifted from one office to another. That's one advantage of using carrier. If you make a mistake and put in a wire circuit that you don't need, you may have to look at it the rest of your life. With carrier, you just pull up in your car and bury your mistake by moving the carrier terminal elsewhere.

In the matter of testing, we can line up carrier by simply connecting it up and talking over it. I think, however, a 1,000-cycle oscillator and a couple of dbm meters, costing $150, are a good investment. In addition to using these in lining up carrier, we can use them to make all types of transmission loss measurements. Whether we have carrier or not, we probably should have one of these transmission test equipments. The radio supply man can test and furnish the type of vacuum tubes used in most present day carrier terminals. The physical circuit can be tested by the usual voltmeter methods.

The transmission losses in the conductors, whether they are cable or open wire, increase with the frequency. Likewise, the effect of leakage is greater as the frequencies are increased. Don't be surprised, too, if, when we start to use Channel No. 3, we find it necessary to do some transposing that wasn't required when we had only Channel No. 1 systems on the pole line.

An example of the increase in transmission loss is rather forcefully brought home by considering the No. 16-gauge parallel shielded pairs now being placed in cables for television transmission. As you know, the television band is roughly from 0-6 million cycles wide. The loss on one mile of this 16-gauge parallel pair at 10,000 cycles is .125 decibels, but at four million cycles the loss is 18 decibels. With respect to cross-talk, I don't know of any transposition scheme which is effective much above 140,000 cycles. This, in spite of the fact that during the next two years we expect to operate in our section of the transcontinental cable a 12-channel carrier with a top frequency of 240,000 cycles. This much you can be sure of—cross-talk will increase as your carrier channels extend into the higher frequencies.

I have intentionally omitted going into detail or talking about the loss at various frequencies of the different types of conductors, because all of the information is contained in literature to be secured for the asking from any of the carrier manufacturers. All of them have well-written, understandable manuals which, I am sure, will give complete applicable information.

BRUSH CONTROL BY SPRAYING

By H. L. JACOBS
Technical Services Director
Davey Tree Expert Co.

UNWANTED woody growth beneath telephone lines needs no description to establish it as a problem to members of this group. To a varying degree it is a perpetual headache. As more rural lines are built and labor conditions become more difficult the headache grows.

Among the methods used to fight weeds, the use of chemicals is not new. However, with the advent of some rather new chemicals which will translocate from leaves to the roots, widespread use of foliage sprays to kill persistent sprout and seedling growth has become practicable.

I would like to emphasize the fact that, while improvements in methods and chemicals will take place in the future, the use of chemicals to fight woody growth is here to stay. Practices developed over wide areas since World War II have taken chemical control or eradication of brush out of the one span, or one mile, test plot stage. Using methods developed by the Davey Tree Expert Co., at least one large unit of the Bell System has recently completed the third full season of extensive spraying, looking toward eventual reduction of this phase of maintenance to a minor problem.

Among the Independents, George King, plant superintendent, Missouri Telephone Co., and W. M. Driggs, general plant superintendent, Illinois Telephone Co., have made progress in brush control with chemicals. Three power companies with whom we work have completed three years of program spraying. One of these has almost completely covered its transmission line system. Three other companies have completed the second year of their program based on Davey company experience and practices.

H. L. JACOBS

I mention these sustained programs briefly to illustrate my statement that brush control is beyond the "let's hope it works" stage. Other utility systems, either as a result of their own research or in collaboration with chemical companies and other contractors have established programs looking toward getting away from hand-cutting methods as completely as possible.

Two chemicals or groups of chemicals have made possible the present larger scale chemical brush control or eradication practices. One of these is made up of the so-called hormones or selective herbicides. Of these, 2,4-D is the more commonly used agricultural herbicide and has been given the greatest publicity; 2,45-T has come into the picture more recently. These materials are called selective herbicides because they will kill some species of plants but are relatively ineffective on other species. The use of 2,4-D to kill dandelions without injury to a blue grass lawn illustrates the selective use of the herbicide.

In our work we have made only limited commercial use of the hormone sprays. There are two chief reasons

for this. One is that the selectivity inherent in these materials carries over to tree species. For example, with 2,4-D, wild cherry may be killed readily while oaks, hickories, ash and some maples are little if any affected. 2,4-D in our opinion is a very unsatisfactory killer of woody growth of mixed species. 2,4,5-T is less selective and has increased the extent of the kill possible with hormones. We believe that any attempt to kill brush with hormone sprays at the present time should be based on 2,4,5-T or, at least, that it should be included in the mixture, although a mixture of the two hormones still exhibits a high degree of selectivity and none too high a level of root kill.

The second reason for our reluctance to make wide use of the hormones is the possibility of extensive off the right-of-way damage to susceptible crops. I have seen volatile forms of 2,4-D and 2,4,5-T, most commonly used for brush control, cause distortion and injury to susceptible trees and crops as much as 1,000 ft. from the sprayed area. Serious injury frequently occurs within 300 to 400 ft., and distortion of cotton, one of the most sensitive crops, has been reported as much as a mile from the sprayed right-of-way.

While our commercial use of the hormones has been cautious and limited, we have carried on an extensive experimental program with them. These experiments have been designed to find penetrants or additives of some sort that would decrease slectivity and so increase kill of the roots. These experiments have also included use of several of the less volatile forms of 2,4-D and 2,4,5-T in order to evaluate their effectiveness on brush and safety to nearby crops. We believe we have made enough progress in these experiments to enable us to fit the hormones into at least a limited place in our service. However, we intend to continue to be conservative and to offer methods which have been reasonably well established by prolonged research. We believe this is more satisfactory for us than to offer a program which may have to be altered radically on short notice as serious faults appear in commercial work.

I have chosen to leave until the last the second of the two chemicals or groups mentioned previously. In 1946 after extensive testing of the chemicals then available, we felt justified in establishing a brush spraying service based on the use of ammonium sulphamate. This is not a secret material. A commercial form of it is marketed by the duPont Company under the copyrighted trade name of "Ammate."

We have just completed our fourth season of large-scale use of ammonium sulphamate. In 1949 we applied nearly two million gallons of ammonium sulphamate solution in states as widely separated as Louisiana and Michigan, New York and Kansas. About 80 per cent of this work was done for customers for whom we sprayed in 1948, 1947 or 1946. Only minor changes have been made in strengths of solution used and in methods of application needed to obtain most effective kill on different species, varying heights of brush and on brush growing under different soil conditions. As with any material or method, increased experience results in increased skill in its use.

Left to right: W. A. PETERSEN and C. H. REESE, both of Paragon Electric Co.; H. E. MUNDY, Kellogg Switchboard & Supply Co., and W. D. McCORMICK, Menominee, Mich.

Ammonium sulphamate properly used on mixed brush has given almost complete kill to the ground, and perhaps 80 per cent kill of the roots of all the stems sprayed. A few species show more resistance to the strength of solution commonly used and, in solid stands, may require a more concentrated solution than is customary. Solid stands of species with especially deep or widespread root systems such as osage orange or species which sucker freely from roots, such as black locust and sumac, may not show as high a percentage of root kill as oaks, hickories, wild cherry, elms and several other species common in mixed roadside growth. It is significant though that, with only an occasional exception, no repeat spraying has yet seemed necessary under utility lines sprayed in 1946, 1947 or 1848.

Left to right: MRS. H. T. McCAIG, Chicago; ERNEST BRADSHAW, Kellogg Switchboard & Supply Co., and MRS. C. P. STOCKER, Lorain, Ohio.

It seems reasonable to estimate that in some cases no respraying will be necessary for from seven to 10 years on power transmission lines where wide rights-of-way with high poles are maintained. Telephone lines with generally narrower rights-of-way and shorter poles may require a somewhat shorter spray cycle. In any case, the eradication of a large percentage of roots and stunting of many of those remaining means a smaller amount of the budget needs to be devoted to repeat treatments, than is the case when the brush is cut, or when it is sprayed with less effective materials which may require as many as five or six sprays in 10 years to control the resistant species.

Needless to say, any material used along roadsides and across fields must be non-poisonous to live stock or to other animals. Likewise, no one would consider using a material in such locations which would poison the soil or prevent growth of grasses, legumes or other herbaceous cover necessary to prevent erosion.

So much for specific chemicals in our brief discussion of practical present-day chemical warfare on woody plant growth. In passing, though, I would like to mention that there are other new and promising chemicals which for the present must be considered promising only to the research worker. The same thing applies to methods. Dormant spraying, stump treatment and other developments of interest are barely, if at all, beyond the experimental stage at the present.

So many details of this subject might

(Please turn to page 118)

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SPECIAL AND AUXILIARY SERVICES

By MERLE M. HALE
Member
USITA Commercial Committee

WE need not take the word of business experts to realize that we are changing from a seller's market to a buyer's market in the telephone business.

I think many of us may feel that this change will have its compensations, because if we thought we had troubles before, we found they were nothing compared to those we have had during the era of telephone scarcity. It may be a relief to go out after the business rather than having to explain to people why we can't furnish them telephone service. While most of us still have waiting lists, they are disappearing rapidly and we must turn our attention to the time when we must again sell our services.

Prior to the war many telephone companies had very effective sales programs, including active employe participation. We should now resurrect these plans and dust them off and bring them up-to-date. For many of us our cable plants and central offices are bursting at the seams, and until we can provide the necessary capacity, both in cable and central office equipment, we cannot engage in the sale of our basic commodity — main station exchange service.

But there are many other services which we have to offer, and some of them are more remunerative than main station service. It is these telephone by-products, or supplemental services, that I want to discuss with you. Speaking of supplemental services as by-products reminds me of the situation in the meat packing industry. I am sure you have heard it said that the meat packers lose money in the handling of stable meat items such as steaks, roasts, chops, etc., and make their profits entirely from the processing of by-products. It has been said that the only part of an animal the packers do not utilize is the squeal. Our situation may not be exactly parallel, however, I do know that if it were not for the income from services and equipment other than exchange service, none of us would be in business very many days.

Supplemental services include toll service, full-period talking service, short-period talking service, program transmission service, extension station service, directory advertising, public and semi-public telephone service, private branch exchange service, multiple system, key telephone system, key telephones, mobile telephone service, telephone answering or secretarial service, extension and exchange line mileage, jack and plug equipment, bells, gongs, push button and buzzer equipment, neon signal lights, signal control relays, cut-out switches, TWX service, recorder-connector units, etc.

Before engaging in any sales effort for these services we suggest that you first analyze them from several angles. First, we should be certain that our rate is commensurate, that is, that it will be a good investment for us to provide the service. Next, and closely allied with the net revenue item, is the maintenance factor. Even though the rate may be adequate, excessive maintenance might be a nuisance to the company and very unsatisfactory to the customer. This brings us to the

M. M. HALE

next consideration, which is that the item should meet a definite need of the customer and fulfill that need to his satisfaction. The item should very definitely be related to the telephone business, and it is my thought that it should always be provided on a rental basis and never sold outright.

I am going to review some of the services and equipment items which telephone companies today are furnishing. I will not attempt to discuss all services or to list those discussed in the order of their importance, either from a revenue or from a customer value standpoint.

The first is the extension telephone. This item of service can be provided with very little investment other than the cost of the telephone instrument itself. Now that instruments are again available the sale of this item can be pushed vigorously. However, before doing so be certain that your rental rate is adequate. In our company (Lincoln, Neb., Telephone & Telegraph Co.) we charge $1.50 per month for a business extension at exchanges having a business one-party rate of $5.00 or more, and $1.25 per month for a business extension at all other exchanges. We charge $1.00 per month for residence extensions at all exchanges regardless of size. We now have in service a total of nearly 100,000 stations, and of these 9,000 are extension telephones—this in spite of the fact that we have made no effort to sell extensions for the past several years. We think this is a particularly good item to start pushing now that we are about caught up on our main station telephone waiting list.

The next service I wish to mention is directory advertising. There is excellent profit in this item, and like the other supplemental telephone services the more net income you can secure from these services the lower you can keep your exchange telephone rates. We feel this is an item which should be placed near the top of the list of desirable auxiliary telephone services. Some companies turn their directory over to the printer and let him print it for whatever he can make from the sale of advertising. Such companies are losing a substantial item of revenue besides not getting a very good directory, generally.

Last year our gross directory advertising revenue amounted to $178,872.18, and our directory expense amounted to $121,353.81, leaving a net income from the sale of directory advertising of $57,518.37. There have been many years in our company when the balance left after all expenses were paid, has been less than this figure. This indicates the importance of directory revenue to us, and I am sure the same would be true of many another telephone company. We have a total of 124 exchanges and we publish 27 directories. All but two of these directories are published annually. The two, our Lincoln and Hastings directories, are published every eight months. However, we are now giving consideration to publishing these on an annual basis also.

I have here one of our smallest directories which includes only two exchanges, with a total of 437 stations. Our annual revenue from this book is $600 and our total cost of publishing, including printing, distribution and sales expense, is $300, leaving a net profit on the book of $300, which we think is very good for a book of this size.

You will note that we sell advertising on the front cover of this book—we get $3.00 per month for each of two ads and, incidentally, if you are not now selling your advertising on a monthly basis, I recommend that you do so, as it is much easier to sell an ad for $3.00 per month than it would be to sell it for $36 per year—it is a matter of sales psychology. We also have a tag on this book for which we receive $5.00 per month. There is a colored insert in the front of the book, for which we receive $10 per month.

Next I would like to show you one of our books from a slightly larger exchange. This book has a circulation of nearly 5,000 and has annual revenue of $8,000. Our total book expense is less than $4,000, leaving a net profit of over $4,000. This book has a classified section, and when we have a classified section in the book we do not sell advertising on the front cover. Here is another one of our books with a circulation of nearly 9,000, with annual revenue of $16,800, and here is our largest book, the Lincoln directory, with annual revenue of $126,000. Our net income from this book was over $30,000 in 1948 and it will be considerably higher this year.

I do make this recommendation in connection with the handling of directory advertising, and that is that you will find it profitable to engage the services of a directory sales organization which devotes its entire time, 12 months of the year, to the sale of directory advertising. They are experts and can do a much better job than the local telephone manager who has many other problems to occupy his attention. Also, you do not need to worry about these organizations high-pressuring your customers into buying advertising, thereby creating customer ill will.

The next service item I am going to mention is public and semi-public telephone or paystation service. Most of us did little in the way of increasing our paystation facilities during the war except at military installations. We believe it is advisable now to survey every exchange carefully for paystation needs.

This was brought forcibly to my attention a few weeks ago when the manager of a cafe in one of our small towns asked for a second paystation. He explained that his cafe was an intercity bus stop and said that oftentimes there were many people waiting to use the telephone, some unsuccessfully owing to the fact that they had to leave when the bus left. We checked the receipts from his single paystation and found that the receipts were over $100 for every month this year, the high being $127.20 in July. We immediately arranged for the installation of a second paystation, along with a sign in the cafe and some signs outside and along the approaching highway.

Left to right: MRS. HARRY CHAPMAN, Galesburg, Ill.; MARIE JELLISON, Warsaw, Ind.; P. P. WOOD, Wood Associates, Washington, D. C.; MRS. E. R. HETZLER, Greenville, Ohio, and MRS. R. E. DANIEL, Warsaw, Ind.

It will be interesting to observe how much additional revenue we secure from the installation of the second paystation. I am certain it will be substantial. However, the point of my mentioning this case is to confess that we fell down on the job. We should have discovered the need for the second paystation and we should have gone to the cafe proprietor and recommended the installation. We believe there are many other cases in our territory similar to the one described, and you may be certain that we are going to discover them and make the proper recommendations.

Left to right: R. B. RITTER, Raytheon Mfg. Co.; R. P. DUNNING, Graybar Electric Co.; W. E. LUSKE, Raytheon company, and G. W. CRAMOND (seated), formerly of Graybar.

I have discussed this paystation problem at quite some length with Harry Huether, and I find that in his company they have a paystation objective, which I am sure he will not mind having me pass on to you. The objective of the Indiana Associated Telephone Corp. is that the number of paystations equal 12.5 per cent of the primary business stations. I think conditions vary according to exchanges, and while this objective is an excellent guide, I believe there are exchanges which require a higher percentage. Our Lincoln exchange is located in the capital city of the state of Nebraska, and included among state institutions located there is the University of Nebraska with an enrollment of 10,000 students. We have a paystation development of 18.7 per cent of our primary business stations in Lincoln and I think our figure is too low.

Just last month we were faced with the problem of deciding whether or not we should order additional paystation central office equipment for our main Lincoln exchange, that is, the exchange serving the downtown area, and we made a survey of the paystation revenues in this office. We had in the office 99 public paystations, with an average monthly revenue of $42.95, and of this $22 was revenue for local calls, that is, nickel calls. We had in service in this exchange 258 semi-public telephones and their average collections for the month of July were $14.31. We are convinced that the installation of additional paystations in downtown Lincoln will be a good investment, in addition to providing the public with better telephone service.

Before leaving the subject of paystations I do want to stress the importance of some related items. For instance, proper signing. There are some new plastic signs now which give the effect of a lighted sign and I think these and neon tube signs, enamel signs, and decals all have a very important part in the paystation picture. Also, care should be taken to be sure that the paystation facilities are in good order. By that I mean the instrument should be kept clean, with particular attention to the mouthpiece. The booth should be clean, including the glass doors. The telephone directories should be in good condition—in

(Please turn to page 121)

THE COLLECTION POLICY

By R. F. LUCIER
Member
USITA Commercial Committee

TO those of us who have been in the business for a good many years, and even to the newcomers, there is nothing that sounds less exciting than a discussion of collections or I might say collection policies.

We are all to prone to think of collections as purely a routine matter. True, proper routine is very essential to good collection results, but there is still one other thing in connection with our collection policies which I consider very essential, particularly at this time, and to which I shall refer later on.

Since we must serve all those who make application for service and deposit the initial payment, it is very essential in the beginning that we establish a broad, general collection policy and that this policy be made known to our subscribers through newspaper advertising and such other media as the company may see fit to use. The average person would not think of carrying merchandise out of a store without paying cash or making arrangements for credit, so as in all other businesses there must be a definite understanding with the subscriber or applicant for service in regard to the matter of payment.

The best time to firmly establish our relationship with our subscribers or applicants is at the time that they make application for service. At that time all of the necessary rules and regulations concerning the usage of their telephone and the manner of payment can be thoroughly explained by the person taking the application for service. While a good many companies use a printed form setting out these regulations and others use the back of the service order or other means, I believe that it is very essential that the printed matter be explained in full by the person taking the application. Many companies have found the inside pages of the directory a good place for carrying collection regulations along with other information matter.

While most operating companies do have a collection policy on file with the public service commission, together with other items of their tariff, there are still some, particularly among the smaller companies, who have not made such filing. For those who have not I believe it is very essential that this be done at once in order that there may be no misunderstanding in case a denial of service is necessary, and so that the operating companies might proceed to obtain the money that is due them at an early period each month and in an orderly manner.

Most utility companies now have a tariff filed that either provides for a discount on all bills if promptly paid before a certain date each month, or a penalty that must be paid after a given date each month, providing that the account is not paid promptly and when due. There are arguments for both methods and I am not here to advocate one or the other as there is an honest difference of opinion among operating people as to which method is best. Also, the various state commissions differ in regard to the best method, some advocating the discount and others the penalty.

While this all sounds very simple so far, we might be inclined to think that with our tariffs filed and the public having been informed, our problems are at an end and that all we have to do is to sit back and watch the policy work, letting the ax fall on those who fail to heed it. I am sure that as operating people you will all agree with me that it is not quite that simple and that there are many hazards in administering a collection policy, regardless of how well the routine has been set up.

I do not mean to infer by pointing out this hazard that the collection routine, once set in motion should be tampered with and that too many exceptions should be made to the policy. However, let me make it plain that there is, in my opinion, grave danger in administering not only collections, but all company policies too rigidly and harm may be done that may take months or even years to correct. There have been more friends made or lost over the collection counter than at any other spot in our business, and I am sure that you will all agree that there has never been a time in the history of the industry when we could more ill afford to alienate friends or create new enemies than at the present.

With a threat of government competition in our industry it certainly behooves us to so administer all policies so that not the least exception can be taken by even the most critical.

Here we come to the preparation and administration of the "Delinquent" or "Cut-Off" list. Certainly the final approval of that list should be by someone in authority and someone who thoroughly understands "Company Policy" and is authorized to make any adjustment necessary in case of error or for matters of policy. And, again, I am not advocating a lenient policy, but certainly we must differentiate between people who are continually delinquent and those who may overlook the payment of their bill on some particular collection period. Many utilities are now allowing their customers one delinquency a year without application of a collection charge or the losing of their discount whichever the case might be. Whether this goes far enough I am not prepared to say, but I am sure that no person should be allowed to leave the business office without an attempt being made to either convince the customer of the justice of our position or making the necessary adjustments. If supervisory help is not available at the moment to do this, then I think that a call on the customer at his premises is not only justified but is essential.

There is one more thing that is, in my opinion, necessary to the proper handling of our collections and that is that original records of toll calls be made available in the business office and to the employe handling customer payments. Many disputes arise over toll charges. With a take-it or leave-it attitude we are bound to leave many sore spots. While there are different methods of handling this, it seems to me that the availability of the toll ticket which is the original record is the best. This is a simple matter if toll tickets are properly filed. If accounting methods make this impossible, then some other method should be devised that satisfies the customer.

Again, let me stress in closing that our "Collection Policy" should also be our "Customer Relation Policy" and that the end to be attained is not only the retaining of old friends, but the forming of new friendships while collecting for the service which we have rendered. I am sure that this can be attained if the matter is given the attention it deserves.

V V

When a king asked Euclid, the mathematician, whether he could not explain his art to him in a more compendious manner, he was answered, that there was no royal way to geometry. Other things may be seized by might, or purchased with money; but knowledge is to be gained only by study, and study to be prosecuted only in retirement.—Johnson.

• • •

Most people would succeed in small things if they were not troubled with great ambitions.—Longfellow

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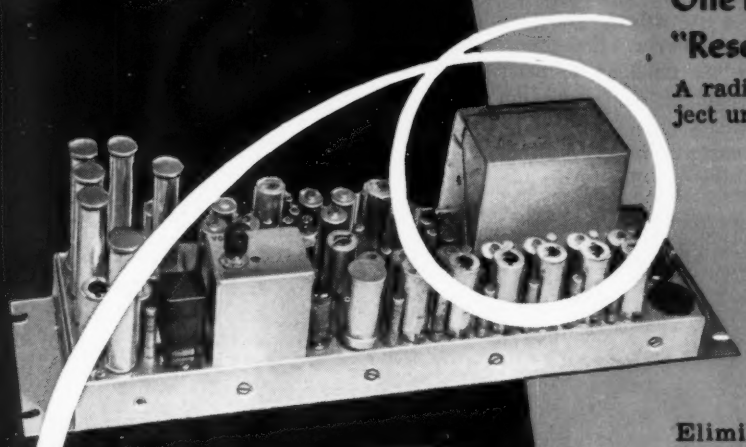

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RATE TREATMENT—SMALL COMPANIES

By RAY J. RIORDAN
Member
USITA Commercial Committee

IN CHOOSING this topic for discussion, I did so, not with the thought of representing myself as an authority on the subject, or an expert in the rudiments of rate-making, but rather because of experiences of personal educational value which may prove beneficial to some of you in your connecting work with smaller companies—or if you are the operator of a small exchange, the information may be of worth should you contemplate a petition for relief either now or at some later date.

It can be said, with little fear of great contradiction, that generally the small telephone company operators—let us say one serving from 200 to 1,000 stations—fear nothing more than an appearance before the regulatory body for a review of need for greater income. Give this operator a three-mile road move job, a two-mile bracket line extension to serve some farmer off in the wilderness, several miles of brushing, or even—heaven forbid—a sleet storm and he'll set himself to the task unhesitatingly. But the complexity of a rate case is another matter. Actually it's like the new salesman making his initial customer contact, or a nervous young swain calling on his first love — anticipation of the event is far more awesome than the engagement.

Believe me, these things are not said in criticism. These expressions come of actual combat duty in all roles mentioned. Needless to report, the first date was by far the most pleasant experience, but this is neither the time or place for duscussion of such confidences.

But, let's attempt to analyze this apprehension in rate cases. No one, be it the representative of a large company or his associate with the smaller property, has ever been particularly gleeful about the prospect of reviewing innumerable studies, preparation of exhibits, appearances for testimony plus the possibility of answering criticism of subscribers who, because of a lack of knowledge regarding telephony, frequently cause unnecessary agitation.

The case is slowed to a walk, its costs mount perceptibly, and public opinion sours to a point that it becomes an unfavorable and discrediting factor in the eyes of the commission in determining what rates shall be acceptable to the customer. Too, rate cases do not occur frequently, except under unusual circumstances. Large and small companies alike spanned a two-decade period prior to 1946, in many cases without any adjustments. Some went as long as 30 years. Then in the 36 months that folowed, some organizations went through the mill twice. The more successful cases, with all phases favorable, public opinion, financial condition of the property, etc., still move along at a sluggish pace. Statute limitations, overworked commission staffs and various other factors contribute to this condition. All of these elements have a tendency to create a mental hazard in approaching the problem.

Actually, however, once the attack is made, once the decision to petition for relief is reached, an enormous stride has been taken.

The question which remains to be answered now is—how does one make

R. J. RIORDAN

the assault? In truth, it is not a simple matter of referring to a book and finding a specific recipe, the problem is somewhat more complicated. In fact, outside of the industry itself there are few sources that can give any real assistance. I know the Americana Institute, publisher of the Encyclopedia, offers a service whereby it will answer any question put to it for a fee, and promises a complete and thorough study of the matter presented. I recall writing the institute envisioning an answer including several questionnaires which could be filled out and turned over to the commission, but instead my mail contained a well-worded, courteous six-page letter which in substance said, "we don't have much to offer."

A number of excellent pamphlets, articles, papers and books have been written by real experts on the subject of small telephone company rate cases and suggestions contained therein will prove most valuable. My intention here is not to review what has been said in these publications, but rather to augment it with a prescribed formula designed to ease preparation of a case. A manager of a small company to whom a rate appeal is one of a multitude of duties, can use any short cuts offered.

One article, particularly designed for understanding by the small fellow with a problem, which can be highly recommended, appeared in the July 1, 1947 issue of TELEPHONY. It was written by Samuel Bryan, a member of the Wisconsin Public Service Commission and entitled, "Essentials for Presentation of a Rate Case."

In his article, Mr Bryan points out that you shall first determine whether or not you have a rate case—do *operating expenses plus depreciation expenses plus taxes plus a reasonable profit exceed revenues* anticipated from existing rates?

With this question answered in the negative, the operator now has specific proof the wolf is at his door and that the company's income statement is as pale as Monday's wash.

Assume now that we have a subject company. It serves 600 stations. It is in need of new revenue. Essentially, it is wise to lay out a plan. Thus, work in preparation of the case can follow a simplified pattern, avoiding duplication of effort. A sample pattern can very well be this:

(1) A *narrative*, outlining the local conditions and reason the appeal is being put before the commission.

(2) A *balance sheet* for the most recent full year of operation, in this case the year ending December 31, 1948. (It might be advisable to include a statement for one or two previous years also, indicating any trend that may be advantageous to the cause at hand, but this is a matter for determination by the company involved.)

(3) A statement covering *operating revenue and expenses* for the last calendar year, or in this case, the year ending December 31, 1948.

(4) A statement showing the *schedule of Present and Proposed Rates* and an estimate of *Annual increased revenue under the proposed rates* based on subscriber stations served at the end of the last calendar year.

(5) A *pro forma statement* or *detail of expenses and income.* This is a statement showing operating revenues and expenses and net operating income for a full year, adjusted to reflect anticipated increases in operating expenses and increased revenues at proposed rates.

(6) A detail and explanation of *adjustments* noted on the pro forma statement.

(7) Evidence that some notification

has been given subscribers that the company is requesting higher rates.

The last year's balance sheet (Item 2) and the operating statement (Item 3) are already prepared in compliance with bookkeeping practices and regulatory demands so five points of the program remain for attention.

Probably the next item to be handled is the notice to subscribers advising them of the action. It should be simple, frank and expressed in understandable language:

(1) Mention the number of years the company has operated on its schedule.

(2) Admit rising revenues due to increased toll usage and demand for service, but point out that rising expenses exceed these by far—an illustration in the form of a small chart will speak more effectively than a thousand word treatise.

(3) Acknowledge inadequacy of the existing rate schedule and announce the fact that the regulatory body has been approached to approve its revision.

(4) In percentage figures describe how costs have increased. Mention specific things—wages, poles, gasoline, batteries or whatever it is that can be definitely tied to the need for more money.

(5) Bring home to customers that the telephone business is more expensive to operate today, something which is true of all business. Fact is, it costs more just to exist than it used to.

This is an important phase of the case. If the subscriber is convinced the appeal is sincere, and if the notice is well prepared and identified with logical statistics, one isn't likely to encounter a hearing room full of complainants.

With three items out of the way, concentration can be diverted to the narrative. The subscriber notice is designed to bring the story to the customer and the narrative to bring the story to the regulatory group. This is the introduction of the case, and the story behind the appeal, and no one can better express it than the manager who is so keenly aware of the company's problems.

This treatise will vary in content dependent upon the individual case involved. Generally, the condition of the company can be described:

(1) The existing rate schedules can be discussed, pointing out its inadequacies and discrepancies, e.g., there may be no differentials in effect between various grades of service, the service connection fees may be outmoded.

(2) Wage conditions can be discussed. Perhaps a local condition results in need for a wage schedule extraordinarily high for a like size community—if so it should be pointed to in the explanation. Perhaps it's new government regulation that influences these conditions.

Left to right: HERB JENKINS and FRED GORNER, both of Link Radio Corp.; R. R. MANN, Connersville, Ind., and M. E. TULL, Met Sales & Mfg. Co.

(3) It may be that certain cable projects or a new building must be completed, or new switchboard installed. Certain rural extensions and held orders may be a topic, and relief of certain circuits may be necessary. Speak of these and describe projects briefly, e.g., "It will be necessary to string two miles of circuit along County Trunk K to relieve rural line 30 presently serving 16 subscribers Northeast of Happytown—estimated cost $400."

The narrative is an excellent place to treat the subject fully, so that the commission may come to recognize the problem as the operator knows it. It amounts to an advance preparation of testimony, and assures a record that is constructive. Too often oral testimony minus benefit of notes and planning can be contradictory, confusing and damaging to the case at hand.

With the narrative outlined a general idea of the additions to plant and added operating costs can be reached and a rough conception of the revenue needed makes possible Item 4, the statement showing the schedule of present and proposed rates and the estimated annual increase the new rates will produce. A simple method of presenting this is to outline a sheet with four headings:

(1) Classification of service.
(2) Station development at the end of the last calendar year.
(3) Present rates with sub-heads.
  (a) Monthly net rate.
  (b) Revenue
(4) Proposed rates with sub-heads.
  (a) Monthly net rate.
  (b) Revenue.

With a convenient work sheet, it is a simple matter to try rate formulas that will lead to the amount required. Of course, if a hand or desk set charge is to be discontinued, the revenue lost on this equipment shall be identified and subtracted from the increase the additional rates will produce so as to reach the figure to be use in the pro forma exhibit. Needless to say, the proposed rate structure shall be carefully weighed—the greater increases being applied on the business and urban phones and the lesser amounts on rural service. Of course, if the rural community served is unusual and the farmers exceptionally happy, one might be a bit more generous in the amount of raise applied to that service, but ordinarily it is prudent to be somewhat cautious with this class of patrons. I'll not argue the matter of rural service costs at the moment, for that's another subject—it is expensive, justifiably the rates should get the greater lift, but for the sake of expediency it is well to avoid aggravating the tillers of the soil.

By this time all is in readiness for the pro forma detail, the crux of the case, so to speak. Briefly this amounts to a reproduction of your annual statement for the last full year of operation with adjustments to indicate how the company would fare if the rates sought, plant additions and wage increases had been in effect. Tax adjustments must also be in the picture. Incidentally, if the hearing takes place the latter part of the year, a current 12-month statement, adjusted, is advisable, but basically the plan follows the same pattern:

(1) Operating revenues and expenses per books are shown.
(2) Next is listed the column of adjustments.
(3) And then the operating figures as adjusted.

The adjusted net operating income then weighed against your rate base—the plant and property account less depreciation reserve — will reveal the rate of return. If it's reasonable, say about 6 per cent, the case is all right.

Only a single exhibit, the explanation of adjustments on the pro forma, remains. This is simply a matter of identifying the adjustment figures and explaining them, e.g., take an estimated increase in traffic expenses. Break down the hours worked in the year at hand, apply the average hourly rate anticipated, or if it was recently raised —the latest rate, to the annual total

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THE TREND IN STATIONS

By HARRY J. HUETHER, JR.
Member
USITA Commercial Committee

I THINK it was Voltaire, who said "that the art of speech was given to man (and woman) to enable him to conceal his thoughts." With full knowledge of such sound philosophy, I am going to expound to you for the next few minutes.

I recently heard over the radio that the difference between a pessimist and an optimist could be easily defined by his manner of expression, for example, a pessimist says the glass is half empty and the optimist says the glass is half full. So the record will be straight, I want to say the glass is half full. My remarks are in no way intended to be pessimistic but rather to alert each of us to conditions which I believe face all of us in this industry.

It is admitted that "experience is a great teacher" but when the experience of station development in the telephone industry is, so to speak, zigzag or up and down, then close analysis of the past, the present and crystal gazing into the future is necessary.

"History repeats itself" is a common expression, but the exception proves the rule in the majority of cases, so let's look back to "Yesterday" —1930 or thereabouts. The telephone industry from its very inception until the "crash" in 1929 had never known anything but expansion, engineering done on a long haul basis, grow—grow —grow and in the early 1930's, we had growing pains. A depression had arrived, unemployment existed, people ordering telephones removed them and like all other industries and individuals alike, the telephone industry was not prepared for such a turn of events. We had built plants for increased business, not a diminishing market with the result of high investment per station in service and low return, too much physical property in service, but no demand or market for our product. Various means to amend were adopted, employe lay-offs, reduction in wages, staggered hours and days of work for those employes remaining on the payroll. Sales campaigns were in vogue, service areas were enlarged, multiparty service was offered within the base rate area and to a large degree chaos existed within the industry.

Prior to this sweeping turn of economic conditions a normal station growth for a going telephone company approximated 4 to 5 per cent. Then we drifted to a net station loss, then, so to speak, we stood "status quo" and then the sun started to shine again about 1937 and we were actually looking at black figures, a net gain, even though small, was a blessing. And about this same time while every one was busy mending his fences, conversation turned to talk of war. The federal government, naturally having its finger on the pulse of coming events, started to mobilize an army, place restrictions on equipment and all of a sudden all hell broke loose, we were at war and equipment needed for an unprecedented demand for service was on a strict priority basis—again chaos existed but in reverse to our previous experience.

And then came "today", the postwar period, with a demand for telephone service beyond vision, every company needing equipment of all kinds and all equipment and apparatus on the scarcity list, not near enough to go around. So something new was born in the industry—*held orders*—classified in different categories so as to expedite future handling. The public pounding, yes threatening, to have your right to operate revoked, if something wasn't done immediately.

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Today *"held orders"* are still quite common with a large number of telephone companies. Net station gains of 10 per cent, 15 per cent, yet even 25 per cent in a year were not uncommon during this period. At this time all indications point to another change in basic economics, nothing alarming but definitely a change.

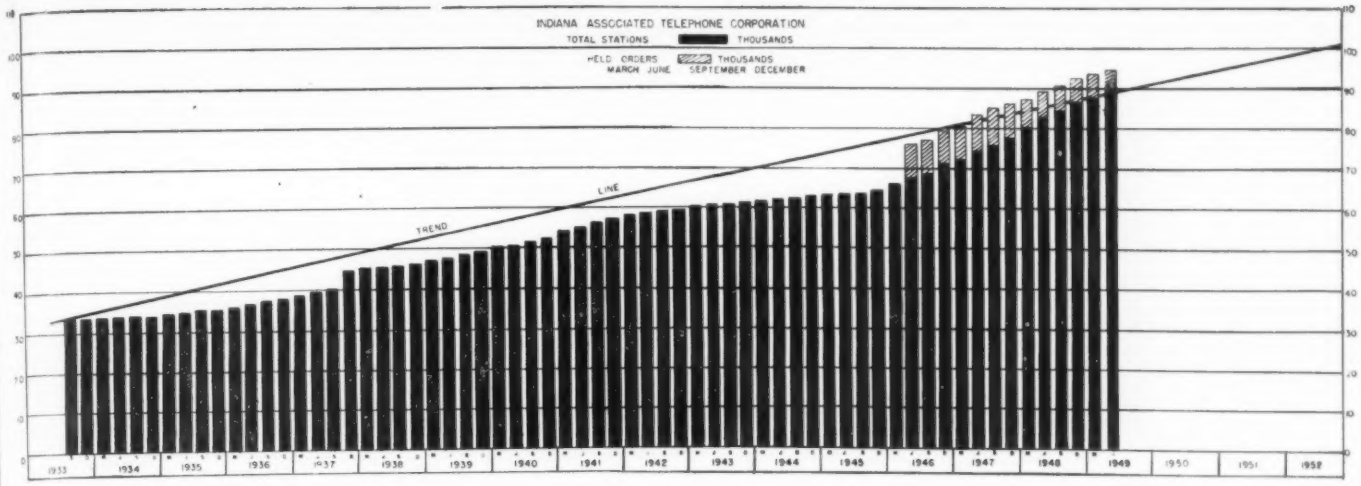
Now we must face *"tomorrow"*, the crystal ball is hazy and any one's guess is good until proven otherwise. I believe that we are facing a change in business conditions, but only to the extent of a leveling off period possibly a more favorable condition under which we may project future planning. Those of us who are charged with prognosticating future station trends in my own sphere of operation have been keeping some records over the past several months, and it is upon these records or studies that I shall base the balance of my remarks.

During the past six months, we have maintained records detailing the reasons given by subscribers when ordering present telephone service discontinued or removed. The results are somewhat alarming, for example, in our operation with about 210,000 stations, scattered over three states with a very diversified field of business activity, 33 per cent of the total take-outs, numbering 7,869, during this six-month period are catalogued as being removed for these two reasons—*no further use or non-payment*. To keep the record straight, it must be noted that we enjoyed a net gain of 5,739 stations during this same period for the same operations.

Please note carefully 33 per cent of the total take-outs over this period were for reasons that can only be classified as financial or inability to pay. But, this I contend is a healthy condition. There is no doubt that the demands for service including our *"held orders"* are inflated. To correct this condition, we must face a leveling off condition, not a return to a normal condition because we have no definite basis to say what may be normal now or for the future, since changing conditions and war have destroyed such a measure as normal. A check of held orders in several communities indicate a shrinkage of about 25 to 30 per cent since the first of 1949. Again I say this is healthy.

I have had a chart prepared showing the station development in one of our companies covering the past 17 years, 1933 to date, projected to include 1952. Starting with 1933 when this company had a few more than 30,000 stations and carrying in on through the years until present date, the company by acquisition and growth has reached a total of 89,000 stations.

On this accompanying chart, starting in 1946, we have shown the held orders of record, which slowly but surely are decreasing. By drawing a "trend line," a straight line from 1933



to 1949, from the starting point to the date latest station data are available and projecting this line through 1952, three years hence, we estimate that over the next three years we will gain a minimum of approximately 10,000 stations. It should be noted here that some of the inflation atmosphere has been removed and for the future, this leveling off condition will enable the industry to more clearly project its planning and engineering. Held orders should disappear rapidly during 1950, but we have not reached saturation, in fact the glass is still half-full.

PERSONALIZING THE SERVICE

By G. E. HARTZ
American Telephone & Telegraph Co.
New York City

IF we might indulge in a bit of fantasy and imagine that some one were to ask us to name seven modern wonders of the world, it would be interesting to consider what these phenomena might be. There should be included, no doubt, some of the marvels of nature, some achievements in the realm of science and of industry and, in the field of human relationships. Surely the unfailing courtesy of telephone operators is outstanding—truly, a modern wonder in an age of materialism, and so regarded by every one. This unfailing courtesy has been described by many names, but none that seems to do full justice to the reality. Such terms have been used as "Overtones," "Personalized Service," "Pleasing Service," and the familiar slogan, "The Voice that Sparkles." Perhaps best known is the slogan, "The Voice with the Smile," but this is more than a voice and more than a smile—it is both voice and manner; it is a sincere, deep, friendly, personal interest in every telephone user and in every call.

The description that comes most nearly to expressing the conception of friendly, pleasing service which I have in mind, was not spoken by a telephone man, but by a radio commentator, who referred to, and I quote, "The telephone operator, with her soft voice and gentle manner." Now this commentator was not referring to any individual operator, nor to any particular central office, but to telephone operators everywhere—local and toll, information and assistance, Bell and Independent. One of the most understanding conceptions of the kind of thing we are talking about appeared recently in an editorial, in a little country newspaper down in Oklahoma. This editor wrote: "Telephone operators take a courteous, personal interest in trying to be helpful in the thousand and one little everyday problems that confront us all, and we owe them a debt of gratitude. To the 'Voices with the Smiles' who serve us daily, we extend our bouquet of the week." Could any one of us in the telephone industry have expressed this thought better?

G. E. HARTZ

A well-known writer, who was visiting at our headquarters building in New York a few months ago, expressed the amazement of himself and of his colleagues at the patience, courtesy and understanding invariably shown by telephone operators. He asked as to how these principles were imparted to the new operators, and indicated an interest in attending a class in which this lesson was given. He had the idea that telephone courtesy was something that might be taught, similarly as would be the alphabet or the multiplication table, and he was surprised to discover that this courtesy is something that is not a matter of formula but is a state of mind; that it can not be brought about by written instructions and routines but must be derived by experiencing it; that it is not something to be learned but must be lived. Then he inquired as to how candidates for new operators are selected, and what kind of persons are chosen, to be sure that they will possess the admirable qualities of patience, friendliness, and understanding that seem to be so necessary. Once again he appeared surprised to be told that while telephone operators, of course, are carefully chosen for their character, intelligence, health and similar attributes, they are after all simply a cross-section of young American womanhood who are no differently constituted than their friends and neighbors engaged in numerous other occupations.

This writer, however, received his first real insight into the secret of telephone operators' courtesy when, upon invitation, he visited a central office. Here he could see that the spirit of helpfulness and understanding which is characteristic of telephone operators was something which permeated the whole organization—which ran like a thread through every thought and every action. He could see that the employes in the central office were cheerful, courteous and friendly in their dealings with one another, and rightly he concluded that such an atmosphere is contagious and that the new operators could not help but be influenced just by reason of being a part of it.

Gay, cheerful posters on the walls, and slogans on the bulletin boards, gave emphasis to the theme of personal interest and courtesy. When he sat in with a class of new students, he was impressed by the unobtrusive manner in which the instructor introduced the new employe to this theme of courtesy in her very first lesson. Had he but known it, he would have found that this theme is brought in similarly with every other lesson — never the main subject of any lesson, but always a part of it. The lesson might be on answering a signal, or completing a call, or restoring a cutoff, but the emphasis would always be on pleasing service—on the tone of voice, the choice of phrase, the desire to serve, the expression of regret.

If this writer could have stayed longer, much more of the mystery of how operators get to be so courteous would have been revealed to him. He would have seen that all activities for the realization of a personalized service are directed toward three general objectives—to create in the mind of the operator, first, the sincere desire to render a pleasing service; second, the ability to recognize opportunities which exist in every-day calls; and third, the judgment and knowledge as to what action to take that will make the service more pleasing and will be appropriate and adequate to meet the customer's individual needs.

The first objective, that of creating the desire to render a pleasing service, is accomplished by inspiration and example. All persons naturally wish to be liked—to be well and favorably regarded. Operators, of course, are quick to realize that the people they deal with throughout the day never see them at all and, therefore, must judge them solely on the basis of voice and manner. They are quick to realize also that if they are cheerful, friendly, and display personal interest, their customers generally will reciprocate and thus their work will be made more interesting and pleasant. This thought has been well expressed by the operators themselves—as one operator put it, "Pleasing the customer makes the work easier and gives me greater personal satisfaction." Another operator said practically the same thing in a slightly different way, "Satisfied customers are pleasant to deal with and easy to please."

Left to right: R. J. BUTLER, R. E. CREEL and M. H. GRAWE, all of Long Bell Lumber Co.

Developing in new operators an understanding of what constitutes personalized service requires continuous guidance and help by supervisory forces. It needs to be brought home to the operators that, in their dealings with customers, the manner of handling each call is adapted to the requirements of the individual—that routines and practices are to be used merely as a guide to the handling of calls and are not to be substituted for judgment and common sense in specific situations. This means that the operators must evidence in every action a spirit of willingness and understanding, of cheerfulness and attentiveness, giving service that carries with it the little attentions, little considerations, and little courtesies that become habits and build good will. In short, personalized service means dealing with customers in such a way as to demonstrate that the Telephone Company is made up of friendly, natural people, easy to approach and to do business with, and desirous of making its services ever more pleasing.

Obviously, the opportunities of rendering a personalized service vary with the individual call, although any call can be pleasing. The essence of personalization is for the operator to recognize the difference that set apart one call from another, and to convince the customer that she does make such a differentiation. It is for this reason that attempts to personalize the service by applying a particular practice to all calls—such, for example, as saying "Good Morning" on all calls—often fail of their purpose.

On many, many calls the principles of pleasing service require only that the operator remain in the background, responsive to the customer's wishes, and handling the call promptly, courteously and accurately. The emphasis here is on attentiveness, prompt action but unhurried manner, and a natural pleasing voice. The functioning of the operator on such calls is as unobtrusive as possible — the voice pleasant and businesslike, the manner courteous and assured. When there is anything out of the ordinary about a call or when something goes wrong, the attentive operator is quick to recognize it, and to indicate that she does so by her tone and manner. Her voice clearly shows her interest and concern; her manner reflects her effort and endeavor. The customer is given the impression that she has already differentiated this call from the mass of others —that it is receiving the best possible attention and will not be set aside and forgotten. Of course, the action taken and the disposition of the call are in harmony with her voice and manner and, therefore, fulfill the customer's expectation of competent handling.

In addition to having the desire to render personalized service and the ability to recognize opportunities of doing so, it includes the exercise of correct judgment as to the action that is appropriate in giving certain calls individual handling. This is fully developed only as the operator gains experience, and after constant emphasis in all training and day-to-day supervisory contacts. Much of the instruction is imparted through the alertness of supervisory forces in pointing out possibilities in the calls that are encountered—by recognizing and commenting favorably where pleasing service has been given, and calling attention to specific occurrences where a more personalized serivce might have been rendered.

Since the operator is invisible, her voice is her only medium for expressing meaning, interest, personality and attitude to the customer. While some operators are endowed with a voice

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THE SMALL OFFICE IS IMPORTANT TOO

By G. E. HENTERSEHER
General Traffic Superintendent
Illinois Commercial Telephone Co.
Springfield, Ill.

THE Independent telephone industry has done in the past, and is at present doing, an outstanding and remarkable job in attempting to meet the demands for telephone service. Stations have been installed by the thousands and still there appears to be no let up in the number of held orders for service. Switchboard and dial equipment shortages have been relieved, but still more equipment is required to meet traffic loads. Miles upon miles of cable have been provided and more is required. Conversions to dial operation, especially of the small unattended type, have speeded up to the point where you ask how many this month instead of how many for the year. Thousands of toll circuits have been provided, many by wire and cable, but the majority by improved types of carrier systems. We hear of new mobile and point-to-point radio installations, automatic toll ticketing installations, intertoll dialing, and many other newfangled things in the world of telephony.

Millions of dollars are being borrowed and spent by the Independent telephone industry to uphold its position in this business. Millions of dollars have been obtained by the Independent industry in rate cases. Millions more will be required to do the job. Everything is on a big scale these days including government spending.

When you talk to an Independent telephone man or woman about the business the conversation usually centers around some big important project, nothing small or relatively simple. Yet, I wonder, are we on the whole, as an industry, as big as our discussions? Don't we, in the Independent industry, still have a lot of the same problems we had 15 or 20 years ago? Aren't we to a large extent "small stuff" in that we still have many small manual exchanges to operate? Do these small exchanges play an important part in our operations or can we just forget them and concentrate on the larger offices? I don't believe we can.

According to the Aug. 1, 1948, data furnished by the United States Independent Telephone Association, there are 11,135 central offices serving 6,360,000 stations and operated by 5,850 Independent telephone companies in the United States. Although there are a considerable number of large Independent exchanges in the country, the majority of the Independent exchanges serve less than 500 stations. Out of a total of 1,039 exchanges in Illinois, including Bell operated, 838 exchanges or over 80 per cent are Independent and serve approximately 447,000 stations. Of these 838 Independent exchanges in Illinois, 647 of them serve less than 500 stations. The company I am associated with, the Illinois Commercial Telephone Co., operates 219 exchanges that serve approximately 140,000 stations. Of these 219 exchanges, 152 or approximately 70 per cent of them serve less than 500 stations. Although these 152 exchanges with less than 500 stations serve only approximately 25 per cent of my company's total stations, they are, nevertheless, very important to our operations and since the majority of them are still manually operated, they do present many traffic problems.

G. E. HENTERSEHER

The operation of the small manual exchange today presents more of a problem than at any time in the history of the industry. Many of the small manual exchanges are today an economic liability because of increased labor costs and inadequate rates for telephone service. Adequate rates in many cases are difficult to secure from the state regulatory bodies because service in the small exchange is reported to be inadequate and present subscribers are reluctant to pay higher rates unless an improvement in service is assured. In many cases service in the small exchange *has* deteriorated to some extent. This is due, without doubt, to inability to replace or rebuild switchboard equipment; replace station equipment; provide adequate tributary toll circuits; and/or secure the type of personnel best fitted to operate the switchboards. Since we must continue to operate many of these small offices on a manual basis for some time to come, it is essential that every effort be expended to improve service to the extent of our ability and as economically as possible.

It has been the practice with our company, and I am sure with many other Independent companies, to operate the small manual exchange on an agency or contract basis with the switchboard located in a home where living quarters are furnished. This practice became more prevalent during the last depression. Due to high labor costs it has been necessary, in many cases, to continue operations on this basis. Although small exchange operations on an agency or contract basis are more economical than on a company-operated basis, they do present more of a traffic problem, as well as, a service problem. Under this type of operation, the company executes a contract with an agent for a fixed amount per week or month based, in some instances, on the number of stations. The agent agrees to render adequate and efficient service on a 24-hour basis and hire any outside help that she may require.

Frequently the new agent has never seen a switchboard before, so a traffic supervisor immediately visits the exchange to train her for the job. Since the agent also has to act as cashier, the traffic supervisor may find a commercial supervisor has preceded her to the exchange to give the agent instructions on how to take in the money; make change; prepare a cash collection report; prepare service orders; and a hundred other little items associated with the commercial part of her work. When he gets through with his instruction all the traffic supervisor has to do is show her how to operate the switchboard; handle long distance and local calls; review the local and condensed toll operating practice; review both Independent and Bell route and rate instructions; show her how to make up her time roll so that she will be sure of getting paid; inform her on all the state labor laws with respect to what she can do and can't do; go over the reports that must be sent the traffic department by the fifth of each month; and then there are peg counts

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to take—oh no! Poor Myrtle! Is the new job and a place to live worth it? Her husband, who is anemic and suffering from downright laziness, is looking in from the kitchen door and the two kids that he is supposed to be taking care of, decide that they want to become operators also, and are bearing down on Mamma.

This, of course, is an extreme case but not beyond the realm of possibility. From some of the reports received from our traffic supervisors I will believe almost anything. Do the small exchanges need traffic supervision? They certainly do—more and more. Is the traffic supervisor able to train the new agent or cashier-chief operator, as the case may be, in several days? Certainly not. In the first place it is not fair to expect the new employe to absorb all the traffic operations, not to mention the commercial training, within a few days time. The traffic supervisor will make repeated trips to this exchange. The agent or cashier-chief operator soon learns that the company is interested in training her properly for her job and eventually she develops into an efficient and loyal employe. If we could only get rid of father in the kitchen—he thinks he is a good night operator now.

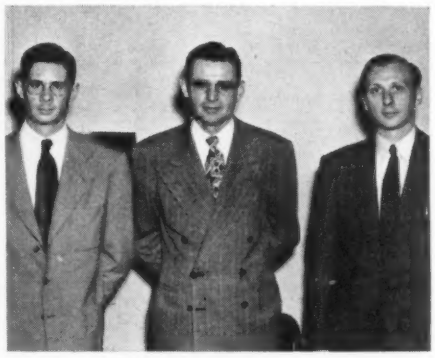
What are some of the other problems which still exist in small manual exchange operations and what can we do to eliminate these problems? How can we go about rendering an adequate or acceptable grade of service which our customers are willing to pay for, and at the same time prove to our management that these small exchanges are being operated as economically as possible?

Due to the size of the community served by the small exchange, it is usually difficult to obtain the same desirable quality of operating personnel which can be secured in the larger offices. It is very often necessary to employ middle aged women and experience has proven that more time must be spent in training these employes than if we could find someone of a more "tender age." Since we will continue to be faced with this problem in our small manual offices, it is essential that adequate traffic supervision and training be available. More time must be spent by traffic supervisory personnel in the small offices.

In some instances, especially with small connecting company tributary exchanges, it has been very difficult to get them to accept the CLR method of handling toll calls. Some of this difficulty has been due to inadequate tributary toll circuits. However, it usually develops that the small exchange operator feels that it is *her* subscriber who is placing the call and she is very reluctant to connect *her* subscriber direct with the toll center operator and hold her on the line. She feels that she is entitled to complete *her* subscriber's call. The solution to this problem is to sell the small exchange management on development of a better speed of toll service for its subscribers; savings in valuable circuit usage; and a reduction in the work load at the tributary office.

Left to right: WALTER AXELSON, Automatic Electric Co.; R. E. HENRY, Ka-Mo Tools, Inc.; F. M. CLARK, Madison, Wis.; A. J. STULTS, TELEPHONY, and O. E. JACOBSEN, Ka-Mo Tools.

It is also difficult in many instances to get the small connecting company tributary office to agree to ticket and time toll calls to the toll center and its tributaries. My company and many other Independent companies have made it a practice to permit their tributary exchanges to ticket and time toll calls routed over independently owned circuits in order to keep this low message revenue traffic out of the toll center office where operating costs are substantially higher.



In this trio are, left to right: R. E. HEBERT, W. S. SEYLER and E. W. GIELOW, all of Addressograph-Multigraph Corp.

This can be satisfactorily accomplished if the tributary exchange personnel is properly trained in toll operating procedures. The small connecting company tributary can also be induced to accept these ticket privileges if assistance is furnished to them by the company owning the toll center office. In most cases, the connecting company tributary does not have a timing device and no routine instructions or rate tables. A suitable timing device can be obtained for a nominal sum and the company owning the toll center exchange should furnish the routing instructions and rate tables, as well as, the necessary training assistance required. In accepting this plan, the connecting company tributary receives additional toll compensation for ticketing these calls; is able to complete a large percentage of its own customers' toll calls; and the toll center exchange reduces its work load when it is not involved in ticketing and timing a large volume of low message revenue traffic.

Some small connecting company tributaries are also reluctant to accept the toll tickets taken by the toll center for billing purposes. Many of these small companies insist on checking with the toll center chief operator or clerk each morning on all calls placed from the tributary exchange the previous day to determine the time and charges on each toll call. In most instances the tributary operator has made a memorandum ticket on each call. This problem can be overcome by selling the tributary exchange on the fact that the tickets taken by the toll center office are of no value to the toll center after they have been check reported for settlement purposes. In accepting the toll tickets written at the toll center for billing purposes, the tributary exchange saves considerable work time and there is a saving to both companies of valuable toll circuit usage. Time and charges requested by the tributary customer can, of course, be secured at any time. The toll center company should also make sure that toll tickets are promptly mailed to the connecting company tributary.

There are still many small Independent companies that insist on handling "collect" toll calls by the "Two-ticket" method for billing purposes. In other words, the terminating office receiving the collect call takes an "In" ticket and times the call for billing purposes. The originating office which also has written a ticket on the call to record

the details does not time the call but marks the ticket at the top with a "T" to indicate that a ticket was taken at the terminating point. An "In" ticket is required on collect calls at the terminating point on certain calls in accordance with the Toll Operating Practice, as in the case of pay station calls where the coin collection must be supervised. An "In" ticket is not required on collect calls for billing purposes if the two companies involved will get together and arrange to mail each other, for billing, the collect tickets involved. Since the number of collect tickets between small exchanges is usually small, it is suggested that they be mailed to each company's billing center in five-day lots.

In many small exchanges it is found that the operator is so intent on completing her subscriber's toll call, that she does not always adhere to authorized routes set up in her routing instructions. Many times the use of unauthorized routes involves toll circuits owned by other companies and toll settlements are only made on authorized routings. It is essential that every office that performs ticket work on toll calls be furnished with routing instructions showing authorized routes in accordance with existing traffic agreements and that the operating personnel in the office be thoroughly instructed as to why these authorized toll routings must be observed.

In visiting small offices one finds many types of so-called "Secretarial Services" being performed by the operator, especially where the operator has been a resident of the community for a long time. This type of service is very difficult to eliminate because the customers in the small communities expect it. These services should, however, be discouraged wherever possible because they cannot be extended to all subscribers and it is not fair to favor only a few. When the small exchange is converted to unattended dial operation, these special services cease to exist and some reaction to the conversion might be received from those subscribers who formerly relied on the telephone operator as their secretary. Although we continue to frown on these special services, I am not at all confident that they can be eliminated entirely from our small offices without creating some ill feeling among our business subscribers.

Another item which prevails in the small office is the memorizing of telephone numbers and this practice also should be discouraged. There is little doubt that some of the older experienced operators do an excellent job along this line and pride themselves upon their accomplishment. At the same time, the telephone company is spending good money to provide each

H. D. FARGO (right) and son HI look over exhibit in TELEPHONY's room.

subscriber with a telephone directory so that all telephone numbers will be readily available. Memorizing telephone numbers by the telephone operator discourages the use of the telephone directory by the subscribers and also results in wrong numbers being connected by inexperienced operators who have not as yet mastered the complete list of numbers.

Some of the most common service complaints received in the small offices, especially if a rate case is involved, are the slow toll service, slow recalls when a second call is to be made, slow repair service, and usually a reference to inadequate or obsolete equipment. Complaints on slow toll service are usually found to be the result of insufficient toll circuits to the toll center office and failure to give CLR service. There are still too many one circuit groups between tributaries and toll centers. Where there is any appreciable amount of toll traffic, there are bound to be NC conditions where only a one circuit group is provided. Slow answers on recalls seem to be a common complaint in small magneto offices. Faulty operation of ring off drops is found to be the reason in many instances. While all switchboard equipment should be maintained in good working order, a practice of voluntary supervision of all connections, with a key sleeve as a reminder, will do much to overcome this type of complaint.

Complaints on slow repair service are sometimes common in the small offices because it is not unusual for the repairman to be responsible for clearing trouble in several small exchanges. It is suggested that trouble tickets be prepared by the operator on all cases of trouble reported and that a trouble record sheet be made daily with all trouble carried over to the next day shown in red. A review of this trouble record sheet will indicate to any plant supervisor the type of maintenance job that is being performed.

The most frequent complaint, however, in the small magneto office is the reference to inadequate or obsolete equipment. The small communities know the type of equipment that is used in the larger communities and resent the fact that many of them still have the same telephone instrument that was there when grandfather was still alive. I believe that the reference to obsolete equipment is directed more at the station equipment in service rather than at the magneto switchboard. Many of the subscribers have never seen a common battery switchboard, but they all know what a handset telephone looks like and have probably used one.

We know, of course, that conversion to dial operation will overcome this objection but what about those companies that are financially unable to convert their small offices to dial? There is a considerable plant investment in station equipment in the small exchange and it would not be prudent to make a wholesale change of station equipment even though the company was financially able to do so. In those instances where conversion to dial operation cannot be made, it would appear that all station and switchboard equipment should be kept in good working condition at all times which should somewhat minimize this type of complaint.

You may be interested in hearing about a program we have started in Illinois. The Illinois Telephone Association has appointed a committee consisting of representatives from the larger Independent companies and the Illinois Bell Telephone Co. It is the function of this committee to promote a program of giving assistance to the Independent connecting companies that have no supervisory personnel. This work was performed by Mrs. Mayme Workman for the association before she retired from active traffic work to become executive secretary of the Independent Telephone Pioneer Association.

The connecting companies not owned by major Independent companies represented on the committee, are for the most part tributary offices, and the majority are single exchange companies.

Since there is a relatively high degree of common interest between a tributary office and its toll center, it is planned that assistance to the tributary will come from its toll center or from the supervisory employe under whose supervision the toll center is operated.

My company will play a major role in this program since we have 105 connecting company tributary exchanges receiving service from our toll centers.

(Please turn to page 126)

THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

THE *Southwestern Telephone News* carried an interesting story recently describing how a company in St. Louis improved the telephone techniques and habits of its sales organization by the use of one of the special services of the Southwestern Bell company.

Within the sales and servicing group at St. Louis is a "usage and tone" specialist, known as a "customers' service advisor." Her job is to help large business customers educate their entire body of employes in tone, technique and general effectiveness on the telephone.

In St. Louis the Bell company has long employed visiting PBX instructors to assist switchboard operators in establishing good tone and correct practice in handling calls. The customers' service advisor takes up where the PBX instructor leaves off. Her main job is training the PBX station user.

The following three reasons are cited as proof that this good training usage is an important part of the telephone company's work with business customers:

(1) The telephone company furnishes a *service* rather than a product. The customer looks to us for adequate instruction in the use of that service.
(2) Efficient use of telephone equipment helps us keep the cost of service down.
(3) A business that's giving good service by telephone often becomes a market for more telephone equipment —for example, a larger switchboard or an order turret.

• • •

About 75 per cent of all human activities, vocational and social, involve speech.

• • •

It has been said: "Ignorance is one thing that costs even more than education does."

• • •

We enjoyed a visit recently with George A. Boswin, manager of sales for the Hubbard Spool Co., Chicago. Mr. Boswin gave us some valuable information on the design, use and maintenance of steel cable reels. We never realized that this usually neglected item could prove so interesting.

• • •

The furnishing of background music in restaurants and other similar establishments is developing into an important business. Although this is a business primarily confined to the larger towns and cities, the degree to which it is spreading out into the surrounding territory is amazing.

In most cases, the telephone companies furnish the required circuits on a rental basis. We have often wondered why telephone companies have not entered this program field.

• • •

An old German proverb states: "Ve get too soon oldt, und too late schmart."

• • •

Clarence Saunders, of Piggly-Wiggly fame, has closed his Keedozle grocery —a modernistic affair operated with keys and conveyor belts—declaring that it was just "too much for the average mind to comprehend."

We remember when a similar statement was made concerning the dial telephone. Telephone operating companies, however, persisted and the public has been so thoroughly trained that the use of a dial now comes naturally. Certainly, the Keedozle is no more complicated, and we believe Mr. Saunders should not have been so easily discouraged.

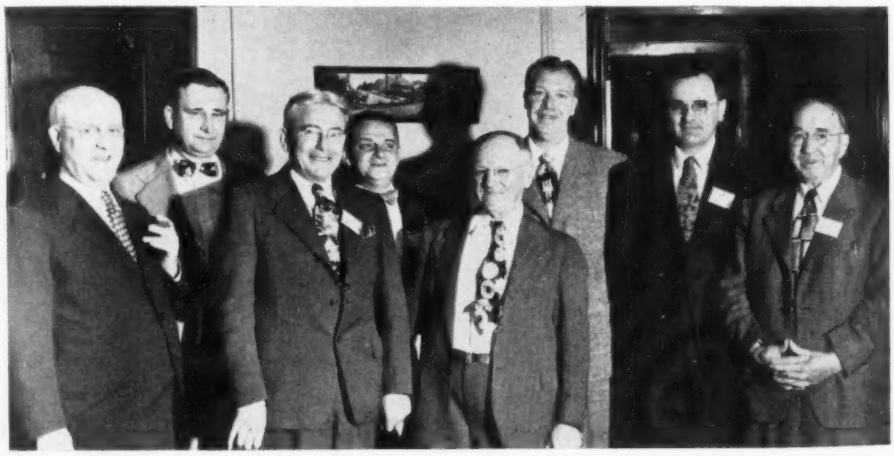
• • •

An airplane pilot in New Jersey, engaged in dusting a farmer's field with DDT, plowed into a 16,000-pound strand supporting a 200-pair cable at the end of a pass over the field. The strand parted and the cable with it. The pilot picked himself out of the plane's wreckage and departed with little injury.

• • •

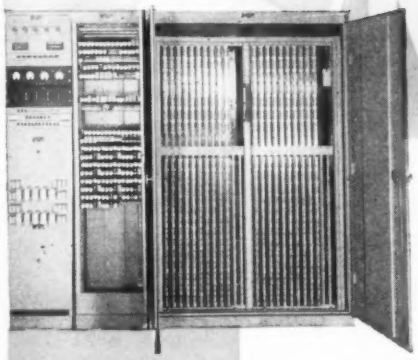
We understand that communications engineers are toying with the idea of using a two-minute recorder in connection with a loud speaker which will be controlled by stepping on a doormat.

This contrivance will greet visitors at the door when the family is away with any message recorded for this purpose. For example, the milkman, stepping on the mat, might hear: "Please leave two quarts today."

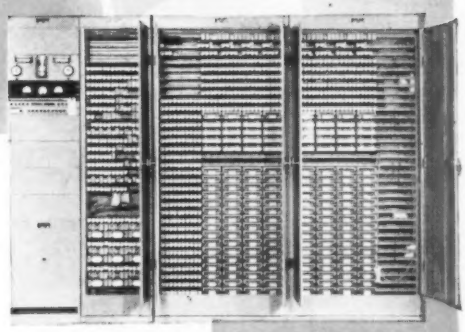


Left to right: GUSTAV HIRSCH, Gustav Hirsch Organization; C. L. LISLE and R. J. MAXWELL, both of Mansfield, Ohio; MILTON STAUB, Gustav Hirsch Organization; J. W. SAFFORD, Troy, Ohio; R. E. JOHNSON, Gustav Hirsch Organization; VERNON HEIMBERGER, American Steel & Wire Co., and C. D. GOTT, Wellington, Ohio.

NORTH POINTS THE WAY



McBERTY SYSTEM
Dial Automatic
Relay Type Switchboards



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Dial Automatic
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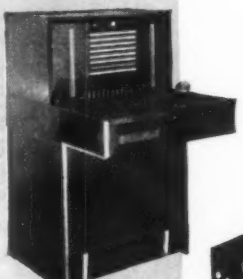
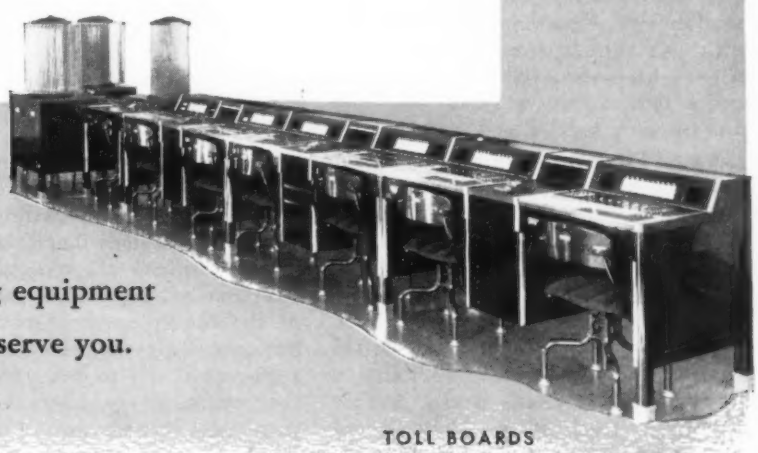
This year, as in years gone by, NORTH leadership continues to assert itself, making it possible for you to have proven equipment to enable you to render a superior service. Our laboratory, engineering and production facilities are constantly working in your interests.

NORTH TELEPHONES



PBX
Full Multiple
Attendant's
Cabinets

PUSHBUTTON PBX
Key Box Units



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Also associated telephone switching equipment of the highest quality to better serve you.

Consult us for your requirements.

THE NORTH ELECTRIC MANUFACTURING CO., Galion, Ohio, U. S. A.

Originators of ALL RELAY *Systems of Automatic Switching*

TOLL LINE TRAFFIC ENGINEERING

By G. E. KRIEGER
Member
USITA Traffic Committee

THERE is no mystery about the behavior of telephone traffic. Its characteristics have been carefully studied and we have learned how to furnish telephone facilities to provide adequate service under varying conditions. We are thus able to carefully plan any installation or addition of telephone equipment and facilities so that the quantity of equipment will be sufficient, and only sufficient, to handle the expected traffic. There need be no element of, "I guess we need," in the planning of telephone plant.

Toll circuit requirements can be determined similarly on an engineering basis. The Bell System companies maintain toll traffic engineering divisions as a part of their general traffic operations wherein continuous studies are being made of the toll line requirements for years to come. Toll line traffic engineering practices have been carefully and thoroughly developed for the Bell companies. The administration of these practices, however, requires extensive clerical staffs and the handling and computing of considerable data. Independent telephone companies generally operate much smaller toll circuit groups. Their clerical staffs are usually limited and therefore they frequently treat their toll line requirement determination on an estimating basis only. It is the purpose of this paper to point out a simplified version of the more complete toll line engineering practices used by larger companies.

The telephone business being strictly a service business, our principal objective at all times is, therefore, that service quality shall be as good as possible. If it were practical, we would like to complete every customer's request for service whether it be a local call, a toll call, or an order for installation of service, immediately when the customer requests such service.

To provide toll line or central office facilities or installation crews to permit this grade of service, would be very costly and would require us to charge telephone rates which might deny telephone service to many potential customers.

Therefore, all of our planning in the telephone business must recognize a balance point between service quality and service cost. No business that I know of provides facilities or personnel to immediately serve the customer at all times when he requests service. All businesses have their "busy hours" and "busy days". We line up at the teller's window at the bank before noon and before closing hours. We line up to get into movie houses. We wait for the clerk's attention in department stores during certain hours of the day and during certain seasons of the year. As long as a business institution renders a reasonably good quality of service overall, its customers will tolerate some delay during busy periods.

In the engineering of toll central office facilities and toll line facilities, it is recognized that this traffic can be stored or delayed for short periods of time during busy hours with reasonable customer acceptance of such delay. As long as a customer gets a reasonably prompt answer to his recording signal, delays can be introduced into the remainder of the calling interval without criticism.

G. E. KRIEGER

These delays of course must be reasonable for we must bear in mind the fact that in recent years a new long distance telephone habit has been developed among the American people. Wartime calling to and from members of the family in the service and wartime expediting of material movements from suppliers to manufacturers and merchants, all emphasized the convenience and importance of toll service. Long distance service is now very much taken for granted. The "impulse calling habit" as we might identify it, has become common. The ability to pick up one's telephone and place a toll call on a CLR basis has caused us all to make generous use of long distance. This long distance habit will continue as long as our calls go through on a CLR basis.

However, if we do not engineer our toll circuit requirements and our toll switchboard requirement so as to minimize toll service delays, there will be a tendency to drive that "impulse" toll usage away. If customers gave many of their toll calls a second thought, instead of picking up the telephone impulsively and placing a call, they would find that they could do without some of them. This situation we wish to avoid. Careful planning can provide a good grade of toll service without incurring the investment penalties of carrying an overbuilt toll plant.

This brings us to the point where we now ask, "How can we determine how many toll circuits are required so that the service will be good without being too costly to provide?"

The engineering of toll circuit requirements involves similar procedure to that followed in the engineering of other telephone equipment such as dial central office equipment, or manual switchboard positions. In all of these cases we take measurements of the telephone traffic during the period when the customer is making the heaviest demand on the service. We call this period, *The Busy Hour.*

The capacities of toll circuit groups are rated in terms of *busy hour minutes.* Tables have been developed showing the number of toll *busy hour minutes* which toll circuit conditions will carry. We call these tables, the *toll trunk tables.* The tables which are now in use show the number of circuits required for a given *busy hour minute load, holding time,* and *trunk speed. Trunk speed* is the interval elapsing between an operator's attempt to seize a toll trunk and the time when the trunk becomes available.

By various study methods, we can gather the basic traffic data for determining the busy hour minutes of circuit time for our various toll circuit groups. These data should be weighted for the future growth of the group, taking into consideration the future station growth of the exchanges offering toll traffic to the group, general overall business conditions, local business conditions prevailing in the areas served by the group, and possible combinations of traffic from other groups into the group under study.

By maintaining a year-to-year record of these study results and plotting them on graph paper, we can construct a picture which will show us the toll development trends for each toll circuit group. These graphs can be of

great help in forecasting and planning future toll construction programs. In an attached exhibit there is shown a typical graph of busy hour minutes for a toll circuit group indicating how such curves can be extended on a trend basis to indicate probable future toll use of the group.

Three factors are required to determine the busy hour minutes for any toll group. These are:

(1) The *average business day messages* for the busy month of the year.

(2) The average *holding time* per message on the group, which includes both talking time and operating time.

(3) Percentage of the average day's traffic of the busy month which falls in the busy hour. We call this *per cent busy hour toll.*

To obtain a record of the *average business day messages,* a traffic distribution record is taken for a 10 or 20-day period during the busy month of the year of the traffic between various points in the system. A separate record is kept of the traffic between each pair of points and should be broken down between person-to-person and station-to-station traffic. If the record is taken during a month other than the busy month, then the record should be multiplied by the ratio of the busy month's traffic to the record month's traffic. For example, sometimes due to shortage of trained personnel in the busy month of say, August, it is necessary to take the distribution study in June. The ratio of the toll business handled in the month of August to that handled in the month of June can be then applied to the June data in order to reflect August busy month traffic conditions. These data can be secured from the record of tolls billed at the exchanges served by the group.

Sample *Form A* illustrates a form on which the original traffic distribution record can be taken. The data from these forms is then summarized alphabetically by originating and terminating exchanges on a form such as sample *Form B.* In Column A is listed the originating exchange and in Column B the other points with which traffic is exchanged. The originating traffic is listed in the A to B column and the terminating traffic in the B to A column. The total column shows the two-way traffic between the points shown.

From this sheet another summary is made by toll circuit groups. The sample *Form C* is used for this purpose. One of these forms is used for each group. The *Forms B* are inspected and all items affecting the route under consideration are listed on the *Form C.* For the average Independent company's toll studies no segregation need be made for practical purposes, between direct circuit traffic 1, 2, and multi, switch traffic. This form reports the total both-way messages handled over the group. By dividing by the number of days in the study the *average business day* messages over the group are determined.

TRAFFIC DEPT.

RECORD OF
OUTWARD TOLL MESSAGES (COMPLETED CALLS)

DAYS	Toll Board				A BOARD	TELEGRAMS
	Per. to Per.		Stn. to Stn.			
	DRP	NRP	DRP	NRP		
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
TOT.						

Period of ____ to ____ 19
And ____ to ____ 19 .
Orig. Ofc. ____ Term. Ofc.
Orig. T.C. ____ Term. T.C.

Form A

The next factor to determine is the *percentage busy hour toll.* This is the percentage of the average day's total traffic of a toll circuit group which falls in the busy hour. This can be determined by peg counts of traffic on the particular group. Practical determination of this can also be made by dividing the busy hour initial and subsequent attempts by the total day's initial and subsequent attempts as shown by the peg counts for the exchanges furnishing the principal traffic to the toll route under study. This factor can also be obtained by segregation of toll tickets involving the route under study, segregating them by half-hour or hourly intervals to determine the busy hour and then determining the percentage of the total day's traffic falling in the busy hour.

Close attention should be paid to the factor of *per cent busy hour toll* because it has an important bearing on the number of circuits required to give adequate service.

As a matter of fact, one of the objectives of the telephone business is to develop ways and means of reducing the percentage of the total day's traffic handled in the busy hour. If we can

find ways and means of doing this by spreading the toll load over more hours of the day, we shall get much better use of our investment in toll plant and shall be able to maintain even higher service standards than we do now.

In the absence of measured data a fair assumption for normal toll groups is that 15 per cent of the total day's traffic will fall in the busy hour.

The next item to determine is the *average holding time* per message. This is the sum of the conversation time and the operating time. Conversation time varies for numerous reasons. It is generally much longer on long lines traffic than it is on ordinary intrastate traffic. Short haul routes with five minute initial station-to-station periods also develop different holding times than average. Streamlined ticketing, as described in George Rose's paper at last fall's conference, (TELEPHONY, Oct. 23, 1948) also reduces operating time. The greater the percentage of person-to-person traffic over a given toll group, the longer will be the overall holding time. The percentage of station-to-station traffic to total traffic can be determined from the original traffic distribution record (see *Form A*) of each group. Assuming that the distribution of traffic between person-to-person and station-to-station is the same for the toll groups working out of an exchange as it is for the entire exchange, this information can be obtained from the regular toll peg counts of the exchange. Switching on toll calls also lengthens the overall holding time.

For direct circuit traffic between small offices, of the size served by most of our Independent companies, the operating time allowance to add to the conversation time to determine overall holding time is as follows:

TRAFFIC DEPARTMENT

Record Of Tributary Toll Traffic

______ TO ______ AND ______ TO ______ 19 ___

ROUTE ______ TO ______

BETWEEN

TOLL CENTER AND VIA

A	(DIRECTION) B	A To B	B To A	TOTAL	(DIRECTION) B	A To B	B To A	TOTAL	INTERSTATION C	A To C	C To A

Form B

Operating Time Allowance for Direct Circuit Traffic with Station-to-Station Per Cent as Shown

Per Cent Station-to-Station Traffic	Operating Time In Minutes
20%	2.7
30%	2.5
40%	2.4
50%	2.2
60%	2.0
70%	1.9
80%	1.7
90%	1.6
100%	1.4

An operating time allowance also has to be added for switched traffic to determine the overall holding time. This varies with the number of switches. The switched traffic allowances to be added to the conversation time, in addition to the operating allowance for direct circuit time, are shown on the following table for varying percentages of switched traffic.

Operating Time Allowance in Minutes For Switched Traffic

Per Cent Switched Traffic	Allowance in Minutes for 1 Switch	2 Switches	3 Switches
5%	.15	.30	.50
10%	.30	.60	1.00
15%	.45	.90	1.50
20%	.60	1.20	2.00
25%	.75	1.50	2.50

Examination of these two tables just above shows that where station-to-station traffic is 70 per cent of the total traffic with a reasonable allowance being made for some switching such as 5 per cent of the traffic multi-switch, 5 per cent two-switch, and 10 per cent one-switch, total operating time to be added to the conversation time is three minutes.

Operating time allowance
70% station to station ...... 1.9 min.
Operating time allowance
5% multi-switch .... .5 min.
Operating time allowance
5% 2-switch .... .3 min.
Operating time allowance
10% 1-switch .... .3 min.

Total operating time allowance . 3.0 min.

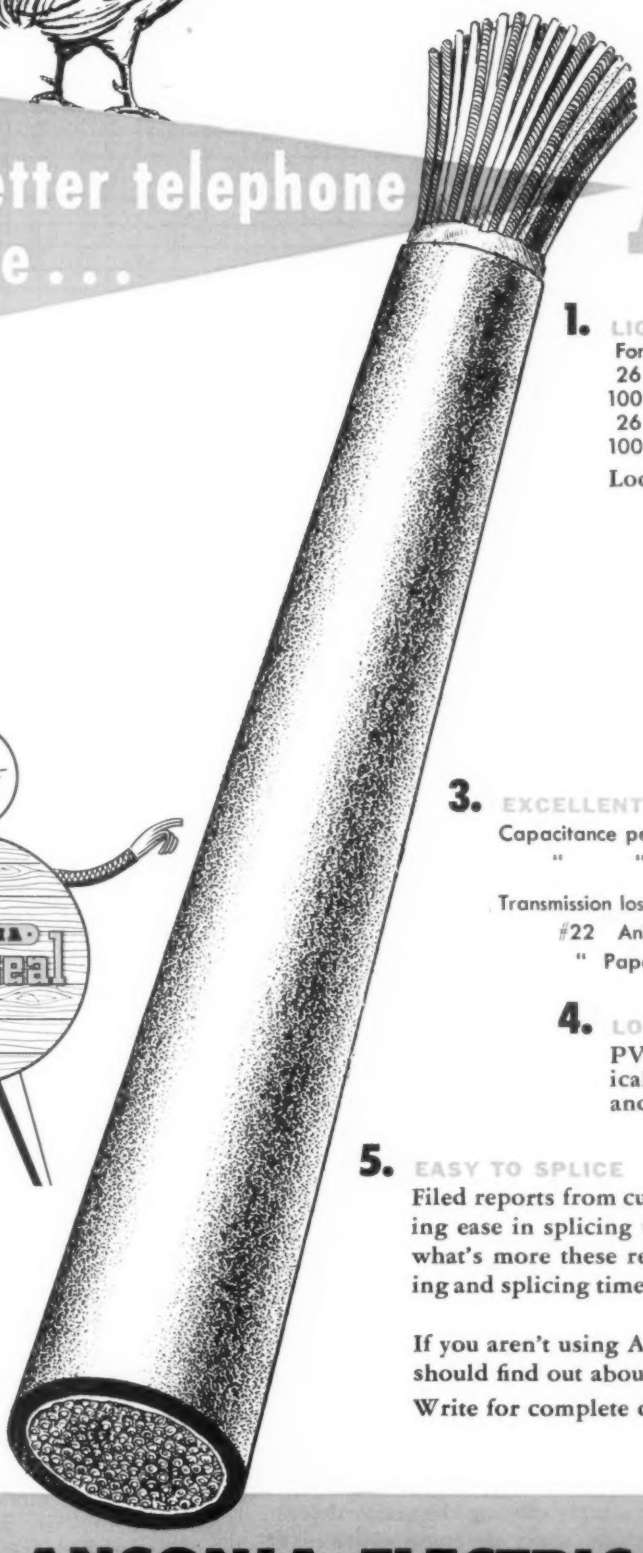
In the absence of more accurately determined operating time, three minutes would be a good average operating time to assume. This should be added to the conversation time to obtain the *average holding time*. Conversation time is determined from an analysis of bothway toll tickets involving the toll route being studied. The calculagraph readings in minutes and seconds should be totaled and an average time per ticket should be determined. For estimating purposes on a simplified basis a conversation time of 3.0 minutes may be assumed for routes having three minute initial period rates.

As a matter of fact, where data on holding time is not available, a fair assumption to make for average toll

SOMETHING TO CROW ABOUT!

a better telephone cable . . .

· ANSONIA ·
Ankoseal



1. LIGHTER WEIGHT

For example

26 pr.	#22 AWG	Ankoseal	205 lbs/M ft.
100 "	"	"	800 " " "
26 "	"	Paper Lead	675 " " "
100 "	"	"	1675 " " "

Look at the savings possible in messenger and size of installing crew.

2. COMPLETELY WATERPROOF

Ankoseal cables will operate completely immersed in water without the outer jacket. Try this on your paper cable! Think what it means in lowered service interruptions and out of order calls in cases of storms or wilful damage to your outside plant.

3. EXCELLENT TRANSMISSION CHARACTERISTICS

Capacitance per mile Ankoseal #22 AWG .09 to .095 mfd/mile
" " " Paper Lead " " " " " "

Transmission losses per mile (600 ohms impedance 1000 cps.)
#22 Ankoseal 1.06 to 1.2 db/mile
" Paper Lead 1.7 to 1.9 " "

4. LONG LIFE

PVC jacket stocks show no change in physical properties after combined direct earth and air exposure for over 10 years.

5. EASY TO SPLICE

Filed reports from customers indicate surprising ease in splicing under all conditions and what's more these reports show both installing and splicing time cut in half in many cases.

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groups is that the *average holding time* is six minutes.

From the three factors so determined; namely, *average business day messages, per cent busy hour toll,* and *average holding time,* we can determine the *busy hour minutes* of toll usage. These three factors are multiplied together as in the following formula:

(ABD Messages) x (Holding Time in Minutes) x (% Busy Hour Toll) = Busy Hour Minutes.

Per cent busy hour toll is not expressed as a percentage in the formula but in its decimal form. For example, 15 per cent becomes .15.

It will be noted that with a 15 per cent busy hour toll factor and an overall holding time of between six and seven minutes, the product of these two items comes very close to being unity (1). The formula expressed above then becomes:

Average Business Day Messages = Busy Hour Minutes.

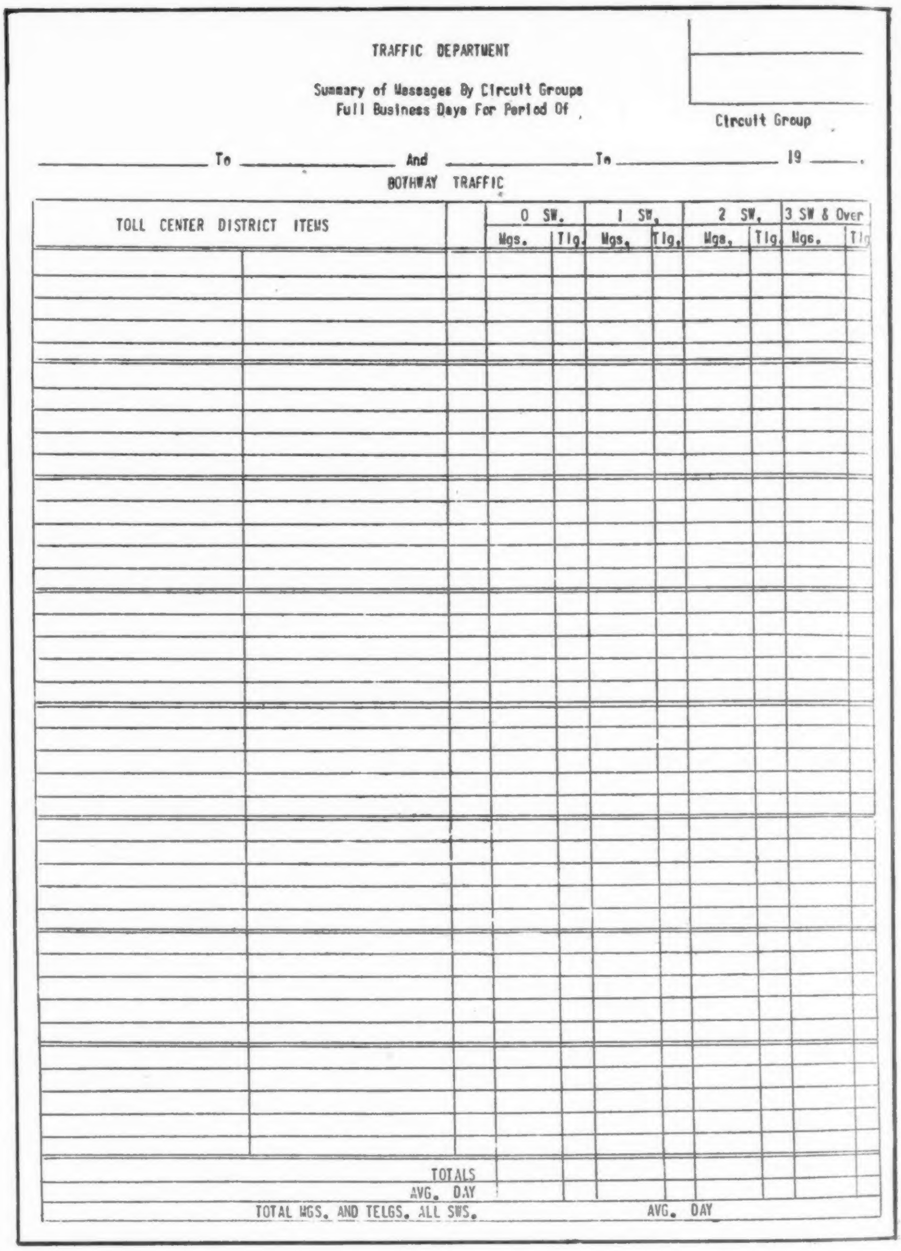
Where the condition prevails that the product of holding time and per cent busy hour approximate unity, it becomes relatively simple to check on toll circuit requirements. This is done by taking a two-way message count over these toll circuit groups in question and applying this message count to the toll trunk tables to determine circuits required. Where a record of inward traffic over the group can not be readily obtained, reference can be made to the last complete toll distribution study and the ratio of the two-way messages to outward messages can be determined from that study, and this ratio can then be applied to the count of outward messages for the current study to obtain the equivalent two-way messages. Assuming that the *busy hour minutes* are equal to the *average business day, messages* furnish a simple method of testing toll circuit requirements and in many cases is very close to the results obtained by detailed toll circuit study methods.

Frequently the toll circuit groups which we are testing for adequacy, are groups connecting outlying tributary offices with toll centers, or outlying dial offices with their dial control offices. These offices usually put all of their toll traffic over one group to the toll or control center. The record of *average business day messages* for the group can be obtained from revenue accounting records of messages billed for the tributary exchange. The month's record of tolls billed can be divided by a factor to obtain the average business day, bearing in mind the fact that Sundays and holidays are low traffic days and with the advent of the 40-hour week, Saturday is developing toll traffic characteristics of its own. A reasonable figure for this use is 28.0 equivalent average business days per average month. This can be accurately determined however, by testing several months' ticket performance by dividing the total month's tickets for an exchange by the average daily tickets for the exchange for the business days of the week.

After we have determined the *toll busy hour minutes for a toll group* we refer to the *toll trunk capacity tables,* select a table offering the grade of service which we wish to establish over the group, and apply the *busy hour minutes* determined above. The tables show the corresponding number of toll trunks required.

There are shown below, typical *toll trunk capacity tables* containing five schedules A, B, C, D, and E. These tables are now stated in terms of *trunk speeds* available for various holding times instead of being stated in terms of probability of encountering no circuit under varying conditions as they formerly were. *Trunk speed* is the average busy hour delay in securing a trunk on each attempt.

These tables show the relation of trunk requirements to busy hour minutes for circuit groups up to 20 circuits. The tables demonstrate the effect of the probability laws inasmuch as the total minutes of circuit capacity available for actual use per circuit is much less for small circuit groups than it is for larger circuit groups. We have experienced this in trying to operate a small community dial office with one trunk into its control office. If two people decide to place a toll call at such an office, it is frequently the case that they try to place it at the same time.


TRAFFIC DEPARTMENT

Summary of Messages By Circuit Groups
Full Business Days For Period Of

Circuit Group

______ To ______ And ______ To ______ 19 ______.

BOTHWAY TRAFFIC

TOLL CENTER DISTRICT ITEMS			0 SW.		1 SW.		2 SW.		3 SW & Over	
			Mgs.	Tlg.	Mgs.	Tlg.	Mgs.	Tlg.	Mgs.	Tlg.
		TOTALS								
		AVG. DAY								
TOTAL MGS. AND TELGS. ALL SWS.				AVG. DAY						

Form C

TOLL TRUNK CAPACITY TABLES (1)

Trunk Speed when av. H.T. per Msg. is:	Table A		Table B		Table C		Table D		Table E	
4-6 Mins.	2.0 Mins.		1.0 Mins.		.5 Mins.		.25 Mins		.13 Mins.	
7-9 Mins.	3.2 Mins.		1.6 Mins.		.8 Mins.		.40 Mins.		.20 Mins.	
10-12	4.4 Mins.		2.2 Mins.		1.1 Mins.		.55 Mins.		.28 Mins.	
No. of Trunks	% Use	Minutes Capacity	% Use	Minutes Capacity	% Use	Minutes Capacity	% Use	Minutes Capacity	% Use	Minutes Capacity
1	55.0	33	38.3	23	25.0	15	15.0	9	10.0	6
2	73.3	88	60.8	73	48.3	58	35.0	42	25.0	30
3	80.6	145	71.1	128	60.0	108	48.9	88	37.2	67
4	85.0	204	76.7	184	67.5	162	56.7	136	46.3	111
5	87.6	263	80.3	241	72.3	217	62.3	187	52.7	158
6	89.5	322	83.1	299	75.4	272	66.7	240	57.5	207
7	91.0	382	85.0	357	78.1	328	70.0	294	61.2	257
8	92.1	442	86.5	415	80.2	385	72.7	349	64.2	308
9	93.0	502	87.6	473	81.9	442	74.8	404	66.7	360
10	93.6	561	88.7	532	83.1	499	76.5	459	68.8	413
11	94.1	621	89.6	591	84.2	556	78.0	515	70.6	466
12	94.5	680	90.3	650	85.3	614	79.3	571	72.2	520
13	94.9	740	90.9	709	86.2	672	80.4	627	73.6	574
14	95.2	800	91.4	768	86.9	730	81.4	684	74.8	628
15	95.5	860	91.9	827	87.6	788	82.3	741	75.9	683
16	95.8	926	92.3	886	88.1	846	83.1	798	76.9	738
17	96.1	980	92.6	945	88.6	904	83.9	855	77.8	793
18	96.3	1,040	93.0	1,005	89.0	962	84.5	912	78.6	848
19	96.5	1,100	93.4	1,065	89.5	1,021	85.0	969	79.3	904
20	96.6	1,160	93.7	1,125	90.0	1,080	85.5	1,026	80.0	960

Note 1: The Trunk Speeds of Service indicated at the heading of each Table represent the average busy hour delay in securing a trunk on each attempt, when holding times per message are as shown.

Note 2: Where the average length of day equals average holding time, or where the product of the % of toll traffic occurring in the busy hour times the holding time is unity (1), the number of messages per average business day may be substituted for minutes capacity in the above table to determine toll circuit requirements.

Examination of the *toll trunk capacity tables* above shows that each table shows a 100 per cent improvement in *trunk speed* over that of the table preceding it. For example, for a holding time of six minutes, the *trunk speed* delay in the first table is two minutes; in the second table it is only one minute; in the third table, one-half minute; in the fourth table, one-quarter minute; and in the fifth table, one-eighth minute.

These tables do not show the effect of alternate routes but in small circuit groups where alternate routes are available for the handling of overflows, the group loading can be materially increased by using these alternate routes.

Table A is the leanest of the schedules and is used for single circuit groups, for open wire groups of 25 miles or more in length and for cable groups of 40 miles or more in length and applies in general to longer haul groups. With an average holding time of six minutes, it is expected that the *busy hour trunk speed*, that is, the delay an operator encounters in securing an idle trunk, will be two minutes. The higher the holding time the greater will be the trunk speed delays.

Tables B and C are used for open wire groups of less than 25 miles in length, cable groups of two or more circuits less than 40 miles in length, groups carrying large portions of switched traffic and are generally used where the message usage is high with respect to the cost per circuit of the toll facility in the group. These tables apply in general to medium haul groups.

Tables D and E are used for toll groups serving community dial offices, groups devoted to heavy loads of A-B toll, and in general to toll facilities where the investment in terminal facilities is high with respect to the investment in toll line facilities. These schedules apply in general to short haul groups.

Toll trunks serving community dial offices must be engineered on a more liberal basis for a number of reasons. Where toll circuits terminate in dial offices where expensive central office equipment is involved and where the toll circuits are in relatively low cost cable pairs or in short routes where the investment per circuit is small, it is economical to go to a higher speed table to prevent tying up expensive terminal equipment to gain toll circuit capacity.

There is also a certain psychological problem involved in these dial conversions because when we remove manual equipment and its operators, who are generally well known in the small communities served by dial offices, the customer develops a resentment if the automatic machine which has taken the place of the operator whom he knew, fails to instantly do the job he wants it to do. Our good judgment should always be exercised in addition to study indications in selecting the number of circuits to serve community dial offices.

Now let's make a sample computation to see how we actually decide on how many toll circuits are required. We have a circuit group for which the annual traffic distribution study shows 150 messages per average business day. Our forecast of station growth and general business activity in the area served by this toll group indicates a probable growth of 20 per cent in the year to come so we plan on 150 plus 30 or 180 *busy hour minute* circuit capacity for the following year. Using the assumed holding time of six minutes mentioned above and a 15 per cent toll busy hours and applying the *busy hour formula*, we have:

Busy Hour Minutes = (180) x (6) x (.15), which in turn = (.90) x (180) = 162 Busy Hour Minutes.

This is an open wire toll circuit of moderate length so we decide to use Schedule A of the *toll truck capacity tables* where we see that three trunks will handle 145 busy hour minutes and four trunks will handle 204 busy hour minutes. We, therefore, decide on four trunks. This is the general procedure for determining toll circuit quantities.

As a matter of fact, the behavior of traffic on smaller groups, that is, toll circuit groups carrying 200 messages or less per average business day, is often erratic and the measured data taken under those conditions is often no more accurate than that which is assumed. For practical purposes the assumption of *average holding time* (6 minutes) and *per cent busy hour toll* (15 per cent) in the illustrations above can be used in many cases in testing the adequacy of our toll circuit groups.

Stated in another way with the assumption of six-minute *average holding time* and 15 per cent *busy hour toll* for a given toll circuit group, the *toll busy hour minutes* usage developed on the group, is 90 per cent of the *average business day messages* carried by the group. This is getting very close to the point where we can say that the *toll busy hour minutes* are equal to the *average business day messages. This* also offers a quick and easy way for checking toll circuit requirements between those periods when full and complete toll circuit requirement studies are being made in which holding time and per cent busy hour are carefully measured.

Another aid can be developed in the simplifying of toll circuit requirement engineering where the toll circuit groups do not vary greatly from period to period in their average holding time or in their percentage of toll traffic handled during the busy hour. Under those conditions a table can be prepared of factors resulting from multiplying various *average holding times* by various *per cent toll busy hours.* Such a table is shown here. The factors shown in this table are applied to the *average business day messages* to obtain the *busy hour minutes.*

Factor for Converting Average Business Day Messages into Toll Busy Hour Minutes When Holding Times and Per Cent Toll Busy Hours Are as Shown

% Toll Busy Hour Holding Time in Minutes	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
4.0	.40	.44	.48	.52	.56	.60	.64	.68	.72	.76	.80
4.5	.45	.49	.54	.58	.63	.67	.72	.76	.81	.85	.90
5.0	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
5.5	.55	.61	.66	.72	.77	.83	.88	.94	.99	1.05	1.10
6.0	.60	.66	.72	.78	.84	.90	.96	1.02	1.08	1.14	1.20
6.5	.65	.72	.78	.85	.91	.98	1.04	1.11	1.17	1.24	1.30
7.0	.70	.77	.84	.91	.98	1.05	1.12	1.19	1.26	1.33	1.40
7.5	.75	.83	.90	.98	1.05	1.13	1.20	1.28	1.35	1.43	1.50
8.0	.80	.88	.96	1.04	1.12	1.20	1.28	1.36	1.44	1.52	1.60
8.5	.85	.94	1.02	1.11	1.19	1.28	1.36	1.45	1.53	1.62	1.70
9.0	.90	.99	1.08	1.17	1.26	1.35	1.44	1.53	1.62	1.71	1.80
9.5	.95	1.05	1.14	1.24	1.33	1.43	1.52	1.62	1.71	1.81	1.90
10.0	1.00	1.11	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00

For example, where 10 per cent of the traffic occurs during the busy hour and the average holding time is four minutes, these figures being representative of short haul routes into dial tributaries, the factor becomes .4. The *busy hour minutes* of a toll circuit group handling 350 both-way messages per average business day would therefore be (.4) (350) or 140 *busy hour minutes.*

The *toll trunk capacity tables* illustrated above contain for each of the five tables, A, B, C, D, and E, a column headed, "% Use." This indicates the percentage of the total circuit time available for actual use. For example, in Table A it will be seen that the 33 busy hour minutes available for one circuit is 55 per cent of the 60 minutes in an hour. Likewise, the 88 busy hour minutes shown for two circuits is 73.3 per cent of the 120 minutes busy hour time for two circuits. etc. These percentage-use figures are used in conjunction with periodical *plug counts* to determine quality of toll service.

The *plug count* is a study generally taken over a five-day period once a month in some cases, quarterly in others, for two periods during the day. This count is taken by different toll circuit groups by three-minute intervals of all of the circuits in use in the group at the time of the count and is taken by counting the actual plugs in the line jacks of the group.

The count is taken for the morning busy period of two hours and also for the first two hours of the evening discount period.

The usage is totaled for the five-day period of the *plug count* separately for the morning and evening periods. The total of the intervals shown on the *plug count* is then divided by the total available intervals during the period and the resulting figure give us an answer which we call, *per cent circuit use.*

For example, on a three-circuit group, the morning plug count is taken over a two-hour period for five days. In that period of five days of two hours observation per day, there will be 600 three-minute intervals. If our plug count shows 525 intervals when circuits of the group were busy, dividing 525 by 600 shows the group to be 87½ per cent in use.

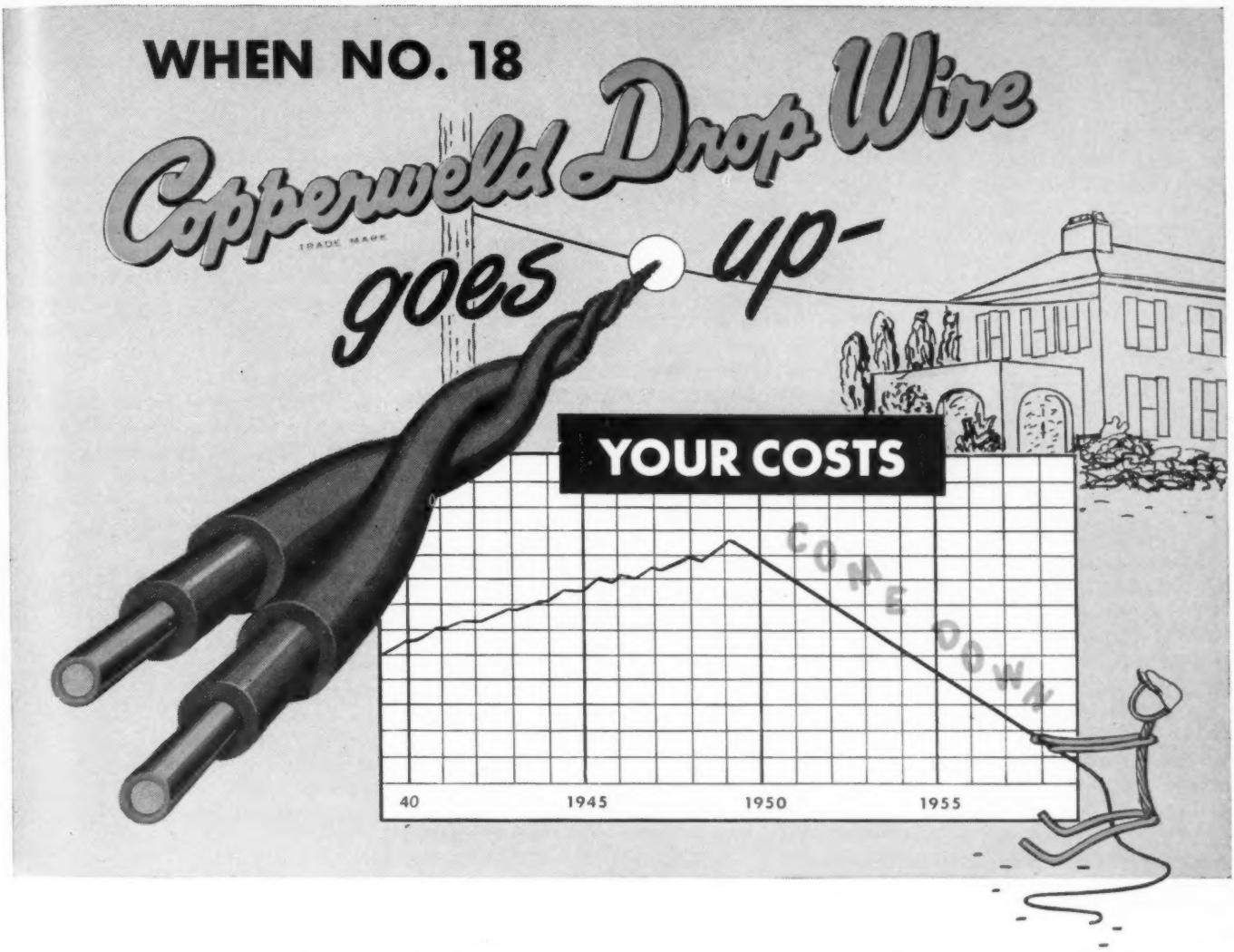
Referring again to the *toll trunk capacity tables* and assuming that we are engineering this particular circuit under Schedule A of that table, we find

(Please turn to page 127)

Record of Toll Circuit Use

Period August 8 to August 12 19 49 Record Taken At Jonesville

Group	Jnsvl - Sabcro					Jnsvl - Sigma					Jnsvl - Kappa															
Time A.M.	Days					Days					Days					Days					Days						
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
9:30	2	2	2	2	2	2	1	2	1	2	-	1	-	-	1											
9:33	3	2	3	2	2	1	2	2	2	1	-	1	-	1	1											
9:36	3	3	3	2	3	1	2	2	2	2	1	1	-	1	-											
9:39	3	3	2	3	2	2	3	3	2	3	1	-	-	1	-											
9:42	4	4	2	3	3	3	3	3	3	3	1	1	-	1	1											
9:45	3	4	3	3	3	3	3	3	2	3	1	1	1	-	1											
9:48	2	3	4	3	4	3	2	3	3	3	-	-	1	1	1											
9:51	3	3	3	3	4	3	3	3	3	3	1	-	1	1	1											
9:54	3	2	3	3	4	3	3	3	3	3	1	-	1	1	1											
9:57	4	3	4	4	4	3	2	3	3	3	1	1	1	1	1											
Total	30	29	29	28	31	24	24	27	24	26	7	6	5	8	8											
T'l 5Days	147					125					34															
10:00	4	3	3	4	3	3	3	3	3	2	1	1	1	1	1											
10:03	4	3	4	4	4	3	3	3	3	3	1	1	-	1	1											
10:06	3	4	4	4	4	3	3	3	3	3	1	-	1	1	1											
10:09	4	4	4	4	3	3	3	3	3	3	1	-	1	1	1											
10:12	4	3	4	3	3	2	3	3	3	2	1	-	1	1	1											
10:15	4	3	4	3	4	3	3	2	3	3	1	1	1	1	1											
10:18	4	4	4	4	4	3	2	2	3	3	1	1	-	-	1											
10:21	3	4	4	4	4	3	3	3	3	3	1	1	-	-	1											
10:24	4	4	4	4	4	3	3	3	3	3	-	1	1	1	1											
10:27	4	4	4	3	4	3	3	3	3	3	-	1	1	1	1											
Total	38	36	43	37	37	29	29	28	30	28	8	7	7	8	10											
T'l 5Days	191					144					40															
10:30	4	4	4	4	4	3	3	2	3	3	1	1	1	1	1											
10:33	3	4	4	4	4	3	2	2	3	3	1	1	-	1	1											
10:36	3	3	4	4	3	3	2	3	3	3	-	1	-	1	1											
10:39	3	3	3	4	4	3	3	3	3	3	-	1	-	1	1											
10:42	4	4	3	4	4	3	3	3	3	3	-	1	1	1	1											
10:45	4	4	4	3	4	3	2	2	3	3	-	1	1	-	1											
10:48	4	4	4	2	3	3	2	3	3	2	1	1	1	-	1											
10:51	3	4	4	3	4	3	3	3	2	2	1	1	1	-	1											
10:54	3	3	3	3	4	3	3	3	2	3	1	1	1	1	1											
10:57	3	4	3	4	3	2	3	2	2	3	1	1	1	1	1											
Total	34	37	36	35	37	29	26	26	27	28	6	10	7	7	10											
T'l 5Days	179					136					40															
11:00	4	4	4	3	4	3	3	3	3	3	-	1	1	1	1											
11:03	4	3	4	4	4	3	3	3	3	3	-	1	1	1	1											
11:06	3	3	4	4	3	3	3	3	3	3	1	1	1	1	-											
11:09	4	3	4	4	3	3	3	3	3	3	1	1	1	1	-											
11:12	4	4	4	4	3	3	2	2	3	3	1	1	1	1	1											
11:15	3	4	4	4	4	3	2	2	2	3	-	1	1	1	1											
11:18	4	3	4	4	3	2	3	3	3	2	-	1	1	1	-											
11:21	4	4	3	3	3	2	3	3	3	2	-	1	-	1	-											
11:24	3	4	3	3	3	3	3	3	3	3	-	1	-	1	-											
11:27	3	3	3	3	3	3	3	3	3	3	-	1	-	1	-											
Total	36	35	37	36	33	28	28	28	29	28	3	10	7	10	4											
T'l 5 Days	177					141					34															
Grand T'l	694					546					148															
%Cct Use	86.75					91.00					74.00															
#Cct in Grp	4					3					1															



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PUNCH CARD CONTROLS

By T. E. WILLIAMS
Machine Tabulation Supervisor
Indiana Associated Telephone Co.
Lafayette, Ind.

[EDITOR'S NOTE. *Mr. Williams illustrated his address with certain forms, designated as exhibits in his address. Lack of space prohibited the publishing of these forms, however, any of our readers desiring copies may secure them by writing to Mr. Williams.*]

* * *

THERE has been in recent years a growing trend in practically all business toward mechanization of accounting procedures. This follows the ever increasing use of machines for mass production of fabricated products that we all see on the market today.

Nearly every business organization that is now in existence uses some form of adding or bookkeeping machine as a labor saving device for its accounting and statistical work.

This paper has been prepared to set forth the advantages of the punched card method as compared to the unit ticket or "biff" ticket system that our company recently abandoned. The intent is not to criticize any system but rather to set forth the advantages and results that we are realizing from punched card mechanization which, of course, makes it necessary to draw some comparisons.

(1) *Background.*

1.1 The subject punched card installation is located at Lafayette, Ind., this being the central accounting and group office for the east central group of the General Telephone System. This group office directs the operation of six telephone companies totaling 164 exchanges and 220,000 stations, located in the states of Michigan, Indiana and Kentucky. The largest company has nearly 90,000 stations and the smallest has only 3,600 stations.

(2) *Description of the Unit Ticket Method.*

(1) *Background.*

2.1 Daily reports of time and material (Exhibits 1 and 2) are prepared by the Plant Department and are sent through the lines of organization to the plant accounting group office where they are reviewed and arranged into sequence for preparation of the unit ticket.

2.2 At the end of each week a prelisting of the hours and quantities is prepared and unit tickets (Exhibit 3) are created on an accounting machine for each item of labor or material appearing on the daily reports. A separate color ticket is used for labor, material and retirements in order to eliminate possible confusion that otherwise might exist in sorting.

All information pertaining to the item of charge such as the reference to the source document, account number, exchange, work order, class of worker, commodity, condition of material and the quantity or hours is recorded on the unit ticket. The tickets are then intersorted manually with tickets for previous weeks of the month. The sorting is by each of the accounting and statistical breakdowns that will later be required, the major sort being the first sequence that will be used during the month-end operations.

At the close of the month after all the tickets have been prepared, bal-

T. E. WILLIAMS

anced to the pre-listed totals and intersorted, a summarizing operation called "eliminating" is performed in which the quantity or hours of all like tickets are added together and are totaled onto the last ticket of the group. All the other tickets are laid aside and are used from here on for reference only. The ticket on which the total hours or quantity has been recorded is called the summary ticket which is to be used in the determination of values in the steps that follow.

2.3 The determination of the value on each summarized ticket is obtained by the use of average prices, except in cases of identified units of property.

2.3.1 Labor values are determined by the application of a labor rate that represents the average wage, including the overtime and night differentials, for each type or class of worker. To accomplish this the labor summary tickets have first been segregated or sorted into like groups by type or class of worker. The extension is performed by the accounting machine and printed on the summary ticket. Accumulated totals of the hours and values are used to check the accuracy of the extending operation.

2.3.2 The calculation of the material values follows the same general scheme as that of the labor. The average unit material value from the perpetual inventory of materials and supplies for the prior month is transcribed to the summary tickets which have been arranged into sequence by commodity for convenience in pricing and extending. The totals of quantity and value for each commodity are accumulated in the accounting machine and are printed by it on a tab or total ticket (Exhibit 4). These total tickets are later used to check the material extension and also as a media for pasting the materials used to the perpetual inventory record.

2.3.3 The procedure used on retirements varies from the materials only as to the price used. With the establishment of the Continuing Property Record, the retirement prices are revised on an annual basis only. In the case of salvaged materials, the average material price is applied, except for identified units of property in which case the original cost would be used.

2.4 At this point the values have been calculated on all the summary tickets. The next step is the preparation of the journal entry. This is done by manually sorting the summary tickets by account number, inserting the proper tab or total tickets between the accounts and accumulating the account totals from the summary tickets onto total tickets by means of the accounting machine. The journal entry is then copied from the total tickets.

2.5 It may be well to mention at this point that a separate type of tab or total ticket is used for each report that is required. These tab or total tickets are inserted in the proper place as the summary tickets are resorted by hand for each report. They are then used to record a total accumulated in the accounting machine from the summary tickets, and for copying to a report or a journal.

2.6 The next step is the compiling of the so-called "Exchange Detail" (Exhibit 5), which is an analysis of the primary accounts under Telephone Plant in Service, Depreciation Reserve

and All Expense Accounts further broken down by the exchange and source of charge. This entails a sorting of the summary tickets, the insertion of and accumulating onto total tickets and the copying or transcribing to the "Exchange Detail" sheets which have the exchange names vertically on the left side of the sheet and the various sources of charge across the top. A separate sheet is used for each of the primary accounts.

2.6.1 The "Exchange Detail" is passed to general accounting where such items as the material and labor loadings, voucher charges, reclassification, etc., are posted, the footings brought forward and the totals balanced to the ledger.

2.7 It is imperative that all the summary tickets pertaining to work and job orders be made available to the Construction Ledger Section as soon as possible, not only to post the construction charges to the ledger, but also to clear from the Telephone Plant Under Construction account the depreciation reserve and expense items that have been run through this account for purposes of control and comparison with the work order estimate sheets.

(3) *Advantages of the Ticket Method.*

3.1 Within limitations this system has advantages that are similar to the punched card method in that after the preparation of the summary tickets nearly any type of analytical or statistical report may be obtained for the sources of charge that are recorded on the tickets.

3.2 This system also permits the recording of descriptive detail on a ticket for certain peculiar charges that might be questioned at a later date. This will in some cases, eliminate the necessity of referring to source data that might be required on the punched card basis.

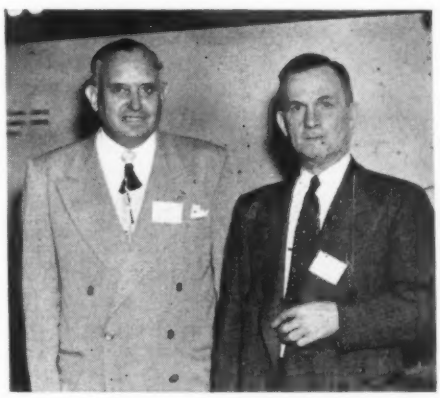
3.3 The personnel necessary to control and operate the unit ticket method is, generally speaking, easier to obtain and train than personnel for a punched card system. This is occasioned by the somewhat specialized nature of punched card accounting. In medium sized and larger cities, the above condition should be nearly equalized due to the more general use of punched cards.

(4) *Description of Punched Card Operation.*

4.1 In 1947, there were certain conditions in existence under the unit ticket method that were not desirable in the eyes of management, and as a result the systems division, of Arthur Andersen & Co. was engaged to make a study of the plant and general accounting procedures. It was recommended that an IBM Punched Card System be installed in order to correct conditions that will later be apparent.

Left to right: H. A. ROGERS, Toronto, Canada; J. H. KELLOGG, Kellogg Switchboard & Supply Co., and ALDEN L. HART, Kansas City, Mo.

4.2 As is true in all types of mechanized accounting procedures, considerable preparatory and research work was necessary in connection with setting up and preparing for operations. Such items as the designing of forms, the preparation of operator instructions, the training of personnel, the ordering of accessory equipment, and providing for the proper electrical current requirements at the correct location are among the more important items. The setting up of the codes for the various companies, exchanges and commodities required extensive study in order to provide for the expansion and consolidation that was anticipated.



J. W. CHANNELL (left), Channell Splicing Machine Co., and H. F. TIMMINS, Kellogg Switchboard & Supply Co.

This item of codes is important from another standpoint in that the speed and efficiency of punched card accounting is increased by the use of codes rather than names or descriptions. Since a punched card has a maximum of 80 digits of recording and normally does not permit the use of lengthy descriptions, such as, the name of a commodity in a unit or a detail card, a code for the description must contain as few digits as is possible, but must also contemplate reasonable expansion requirements.

The source of charge that required more change in the method of handling than any other was the distribution of vouchers. It was necessary to provide either an attachment sheet or a rubber stamp impression on the back of the invoices in order to uniformly record the items of distribution for each voucher. The distribution of the voucher charges was performed manually under the ticket method and although the volume of work is not sufficient to warrant the mechanized preparation of the accounts payable checks on punched cards, the voucher distribution report is run in order that we may have all sources of charge included in the various analyses that are practical only on the new setup.

4.3 The method of review and arrangement in connection with the daily reports of time and material required very little change for the cutover to punched cards. The additional coding necessary on the exchanges and commodities was, at the start, performed in the auditing section. This operation, however, is gradually diminishing as the plant and field men at the various exchanges are instructed in the use of the codes in preparing the daily reports. We also are of the opinion that eventually time will be saved in preparing daily reports by these men in the field through the use of the codes. Certainly less descriptive information will be required, greater uniformity of reporting will result and more accuracy obtained.

4.4 The card punching involves the operation of a key punch machine to prepare a punched card for each item appearing on each daily report of time and material. This operation is normally done on a group of daily reports covering a period of one week. These punched cards (Exhibit 6) are called detail cards and contain the same type of information as the unit ticket, differing in that some information is in coded form on the punched cards.

4.4.1 After a group of cards has been key punched, it is then checked for accuracy by a machine called a verifier. This machine is a key driven machine similar to a key punch that permits speedy checking of the key punching operation.

4.5 A description of the subsequent machine operations required to arrive at the various journal entries, would become too involved and technical for

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a discussion at this time. Since we are interested in results, this description will be of a comparative nature.

4.5.1 The punched card processing involves the sorting, summarizing, pricing, extending and tabulating of all the various sources of charge to prepare the required reports. In a general way the above functions are very similar to those used in the ticket method, however, there are outstanding differences that should be noted as follows:

4.5.1.1 All of the sorting, accumulating, summarizing, pricing, extending and tabulating is performed by machine. This eliminates errors that frequently occurred under the ticket method in the sorting, indexing of amounts and prices in the accounting machine, the manual transcribing of prices to the tickets and the copying of amounts on reports.

4.5.1.2 Concurrent with the extending of the labor and material values on the punched cards, loading percentages are applied to the material and labor amounts to obtain the loading amounts as a by-product requiring an insignificant amount of work. This is in complete detail down to the point where we can determine for any accounting period the loading amounts individually by exchange by primary account, by work order and by commodity. An analysis such as this is not prepared each month but the example is intended to show the possibilities for the types of analysis that may be obtained.

4.5.1.3 When the summarizing operation is performed, a journal (Exhibit 7) is prepared from the detail cards in chronological order which permits quick and easy reference to any item or items on the daily reports of time and material or the vouchers. Under the old method it was necessary to dig through several boxes of "eliminated tickets" only to find that the item in question was on an "evaluated ticket" that was stored in still another box. It was also frequently found that the tickets were not in sequence due to the occasional necessity to resort for balancing purposes after the summarizing operation has been done or because the last person to refer to the tickets was not as careful to maintain the sequence as he should have been. The above mentioned journal from the punched cards is bound, placed in file and effects the saving of considerable time in referring to source documents.

4.5.1.4 Balancing to the predetermined totals of the quantities, hours or amounts is ordinarily a simple routine job that requires only a few minutes at the most in punched cards. However, there have been occasions when it was necessary to spend literally hours of time under the ticket method to find

B. E. LINDSTROM and A. S. GREENE of Barber-Greene Co.

errors in summarizing or sorting that prevented a "tie in" to the controls.

4.5.1.5 From the detail punched cards a punched card called a summary card (Exhibit 8) is prepared at the same time the reference journal is made. These summary cards are priced and extended to obtain the values for the various sources of charge. These cards, again, are very much like the summary tickets. All the accounting and statistical reports are prepared from these summary cards by the simple mechanical process of sorting and tabulating to obtain a printed report. The ticket method requires manually sorting, accumulating and totaling to a tab or total ticket in order to prepare a record from which the report is manually copied.

4.5.2. After the summary punched cards have been tabulated, they are arranged into account number sequence and the tabulating machine prepares a printed journal entry (Exhibit 9) for each of the sources of charge. To give you some idea as to the speed of this operation, we prepare the journal entries covering labor and its loadings, material and its loadings, plant displaced, salvage and vouchers for six companies in two and one-half to three hours, depending on the fluctuations in card volume for the various sources of charge. General ledger control totals are automatically printed and the grand total of debits and credits is accumulated and printed at the end of each journal entry as an additional control.

4.5.3 The calculation of the Expense Charged to Construction, being the next objective, the summary cards for charges to Telephone Plant are mechanically arranged into sequence by primary account number, exchange and work order where applicable. The gross additions are tabulated and another summary card which is merely an additional source of charge is at the same time prepared for the construction expense amounts.

4.5.4 There still remains several miscellaneous sources of charge or journal entries that have not been recorded on punched cards. These charges consist of such items as reclassifications, material transfers, construction ledger closings and distribution of group and district office expenses. Punched cards are prepared reflecting these charges and are then combined with the punched summary cards for the various other sources of charge, as previously described, to complete the punched card record.

Practically all of the operations up to this point may be considered as a part of the preparation of a record or media that is to be used for later reports and analyses. From this point on all the work consists in the mechanical sorting and tabulating of the cards in specific sequences to obtain the reports and results that management deems necessary. This is the easiest part of a punched card system as well as the part from which the greatest benefit is to be derived.

4.6 One of the biggest advantages to be realized from punched cards is the speed with which a report may be compiled after the cards have been prepared. There is, as a rule, no savings in either time or money unless this card record is used more than once. In other words, to build up the card records such as have been previously described and to use these records only for preparing journal entries, would be a costly proposition and would only serve to improve the accounting accuracy. You will note in the following description of the major reports which we prepare that some of the cards will be used as often as six or seven times as a factor in the various reports.

4.6.1 The analysis of the Net Additions to Telephone Plant in Service (Exhibit 10) sets out the current month charges to this control, breaking down each primary account and exchange by the source of charge and showing the commodities and quantities in connection with the materials and retirements. Although, this report is now run every month we are planning in the near future to make this detailed analysis a quarterly or semi-annual report in order to save the clerical time of posting and carrying forward balances in the continuing Property Records Section. When this charge is made it will be necessary to prepare a monthly report to show amounts by exchange and primary account only for posting to the exchange balance sheets.

4.6.2 A comparison of the Analysis of Net Additions to Telephone Plant Under Construction (Exhibit 11), to the Analysis of Net Additions to Telephone Plant in Service shows two of

the several possible types of reports that can be tabulated from the same or similar cards. The Telephone Plant Under Construction report is in sequence by exchange, by work order, by primary account and by source of charge, whereas the Plant in Service report is by account by exchange by source. Each report shows totals and sub-totals for the various breakdowns, these being mechanically accumulated and printed as the report is being run.

4.6.3 Further evidence of the ability to make various types of analyses from the same cards is shown in the four expense analysis reports (Exhibits 12A, B, C and D), which are prepared each month to permit a review of the plant, traffic and commercial expenses. These four reports, using various combinations of the exchange codes, districts, sources of charge and control and primary accounts, permit a month-to-month comparison of expenses in each location for quickly finding the cause for any fluctuations. From this, management is in a position to correct an undesirable situation before it becomes "ancient history." These reports require a little more than one day to prepare and are available in our schedule in less than a week after the monthly closing.

4.6.4 The maintaining of the perpetual inventory records has been a problem for the Plant Accounting Section since the inception of the use of average material prices several years ago, due to the existence of credit balances in the inventory and due to the difficulties involved in reconciling the book figures to the physical inventory records. The use of punched cards for posting the perpetual inventory records offers a marked improvement over the former method since the discrepancies can be more readily corrected.

By the preparation of a report called the "Warehouse Inventory" (Exhibit 13), we have a record of the balances for each commodity at each warehouse at the end of every month. Sufficient reference information is shown on this report to easily refer to any source records. Under this plan a physical inventory of a number of the non-exempt commodities is taken each month at each of the warehouses and, after reconciling, the necessary entries are currently made to correct the plant and inventory records.

This monthly physical inventory will be scheduled in such a way that all non-exempt items will be counted and checked with the Warehouse Inventory record within a 12-month period. This procedure also makes it possible to check items of sizable value more frequently than once a year, if so desired. Minor items or exempt material will all be counted once a year only, since these are charged out on an experience or loading basis. Although such a record as the Warehouse Inventory would be expensive and difficult to maintain with our former method, it is a fast, routine matter on punched cards that requires only about two days per month.

The regular monthly Materials and Supplies Inventory Report (Exhibit 14), shows for each company the inventory values by sub-accounts as well as the quantities, values and unit prices of each commodity. This report, prepared immediately following the monthly closing and distributed to the plant and executive departments, has been instrumental in reducing the value of the material required in our several companies by as much as 30 per cent.

4.6.4 Special Reports, as a rule, present a problem in that there is no method established or no time provided in the routine of business to compile them. A punched card system is able to handle these reports in a minimum amount of time, if the required data are punched into the cards.

The first month this report required 80 hours to compile by hand. The following month this particular company was "cut-over" to punched cards and the same report required less than three hours to prepare. Of course, the savings in time are not always in such a proportion as this, but there is always a sizeable realization when reports can be compiled for the existing punched card records.

CONGRESS WARMS UP RURAL BILL

Two final House and Senate conference committee reports agreed upon two bills of interest to the industry. First, as to the proposed increase in minimum wages, the conferees agreed to increase the exemptions for telephone operators' wages from exchanges of less than 500 stations to exchanges of less than 750 stations. Minimum wages will be increased in other cases from 40 cents to 75 cents an hour.

Second, as to the REA Rural Telephone Bill, the conferees agreed to eliminate "public bodies" from the list of eligible borrowers and agreed to other provisions of the bill as passed by the Senate (See TELEPHONY, Oct. 15, page 9), with the exception of the anti-duplication provision. This provision was revised to require that in determining that there will be no duplication of telephone systems resulting from the loans, the administrator must set forth his reasons therefor in writing. The provision making the REA administrator's decision final was stricken from the bill.

(5) *Additional Punched Card Applications.*

In the installation of a system of punched cards, it is best to begin operations by handling a small but representative section of the work on account of the inexperience of all concerned. The "cut-over" on the remainder of the job should be accomplished as fast as the work can be assimilated. After obtaining some experience and "know how" on the system, a surprising volume and variety of accounting work can be handled to distinct advantage on punched card machines with no increase in the number of machines or personnel.

5.1 This year the annual materials and supplies inventory of all exempt items and the non-exempt items located in storerooms, not yet covered by the Warehouse Inventory, are being recorded, priced and extended on punched cards. This is one of the additional jobs that is currently being assimilated and will considerably simplify and speed up the completion of this inventory job.

5.2 All the punched card records, in connection with revenues and expenses, are currently being maintained in such a sequence that a six months' statement by exchange and account will be available with only four to five hours of machine time required after the close of the period. The posting and carrying forward of monthly balances will be entirely eliminated, thereby effecting a considerable saving of time in the general accounting department.

5.3 A study of the Construction Ledger is currently in progress with the idea of using the punched cards already in existence to prepare monthly closings from the Construction account. Also, by preparing cards that represent the work order estimates and combining these cards with the cards for the construction charges, we are further planning to prepare an actual to estimate comparison for quickly spotting excessive charges and for isolating cases where there has been a failure to report a charge.

5.4 Vehicle Expense is another item on which we are planning to obtain a much finer analysis than is at present available. By setting up our source records in such a manner as to obtain all the various sources of vehicle expense by car number, we can obtain an operating cost per mile figure for each vehicle. This can also be of benefit in applying a more accurate vehicle expense loading factor.

5.5 Last but not least is the payroll function. This will eventually include the preparation of the labor distribution on an actual hourly rate basis rather than the present average hourly

rate basis, the payroll journal, check writing and the maintenance of earnings records. In order to perform this job in the best way, it will be necessary to calculate the pay for the plant employes from their daily time reports rather than from the so-called "time rolls" which are now prepared and sent in by the supervisors. This will necessarily result in some revisions in the requirements for reporting by the plant and field men.

(6) *Advantages of Punched Cards.*

On looking back, it would seem that most of the advantages of this system, as we see it, have been covered. There are, however, a few points still worthy of mention or further emphasis.

6.1 In order to have accurate results in any system it is necessary to provide for a means of verification of the unit media. A machine is provided to perform this operation in a speedy and efficient manner for punched cards. Such an operation performed on unit tickets would be quite slow and tedious and in all probability would not accomplish its purpose considering the time required and the value received, since it would be necessary to read back all unit tickets to the source documents.

6.2 Reports prepared on the unit ticket plan can be just as accurately prepared as reports from punched cards. It is, however, only human to make occasional errors in the indexing of amounts when operating an accounting machine and it is sometimes a long job to find these errors. This reading and indexing is a mechanical process on a punched card system which has the effect of eliminating the human element. This ability to mechanically read and add, coupled with the very fast and accurate method of sorting are the basic reasons for the superior performance of a punched card system.

6.3 As is the case with many companies, we have been faced with the problem of an increasing volume of work due to the growth of our business and an increased tempo of work in the several departments. From the time of the study of our accounting procedures by Arthur Andersen & Co., until the installation of the punched card system, there was an increase of 50 per cent in the number of transactions to be handled each month. It is significant to note that no increase in the originally specified punched card equipment was necessary, whereas more equipment would have been required if we had continued with our former method. We thus feel that we have a more sound and flexible installation that is better able to fill our present day accounting requirements.

(7) *Cost Comparisons.*

As far as actual costs are concerned our group of companies has not as yet realized a direct saving from the new system. In fact, we have an additional cost of about $500 per month which represents a net figure resulting from the use of more machines and less people. It must be borne in mind, however, that the punched card system goes much farther into the completion of the accounting function than did our previous system and has shifted the burden of our operations in the following ways:

7.1 It has saved the time required in the plant accounting department to manually maintain the perpetual inventory records and to price the materials and retirements.

7.2 It has prepared an analysis of charges to Telephone Plant in such a way as to save considerable time in posting to both the Construction Ledger and the Continuing Property Record.

7.3 There has been created a journal that has already saved many hours of reference work to the original source data such as the daily time reports, service orders and vouchers.

7.4 A new means of finding the discrepancies in the perpetual inventory has been created. In one warehouse that serves less than 10 per cent of our stations, we were recently able to show that during a one week period there had been failures to report materials used on the daily reports to the extent of nearly $600.

7.5 It has supplied the plant, traffic and commercial departments with reports of expenses that make an irregular charge show up quickly and allows each department to review the trend of its costs.

7.6 A detailed monthly report of the non-exempt materials on hand has been made for management that has enabled us to curtail our purchases in some cases where requisitioned commodities are already on hand and thus we have reduced our investment in an item that has no return.

7.7 It has taken over the job of preparing the detail monthly reports of exchanges by primary accounts. These reports are now finished by the 25th of each month whereas they were formerly a month or two in arrears. The resultant saving of time in the general accounting department has been substantial.

7.8 It mechanically performs the counts required for calculation of the Wiring Loss and Gain in about 10 per cent of the time that was formerly required by two or three people in the

7.9 There have been other savings such as those resulting from the preparation of special reports similar to the one mentioned in Section 4.6.4. The 80 hours per month that was saved in this case was applied to other work that could have occasioned overtime or the necessity of letting something go undone.

7.10 The value received from the savings that have been mentioned above will, no doubt, more than off-set the additional cost when relocation of employes in the various departments affected by the punched card system is complete. Under the present changing conditions and volume increases, such as we have experienced, it is also difficult to say how much our personnel might have expanded without the present system. We can also anticipate further savings when we have completed the plans, as previously enumerated, for our punched card accounting system.

(8) In order to illustrate the capacity of this system to analyze, it is interesting to note all the various things that we have recorded on our punched cards. For example, in the material summary punched card (shown in Exhibit 8), the information, as classified below, is contained in punched hole form on the card:

Indication Data	Amounts
Company code	Quantity of material
Source code	Value of material
Date	Supply expense amount
Supply expense loading percentage	Exempt material amount
Exempt material loading percentage	
Exchange code	
Work or job order number	
Field reporting number	
Commodity code	
Letter source code	
FCC account number	
Work or job order code	

It is possible to prepare accounting and statistical reports by any combination of or all of the indicative data on the cards and at the same time accumulate any one or all of the amounts, printing sub-totals and totals for each amount. The types of analyses that can be obtained are thus limited only to the extent of the information contained in the punched cards.

(9) *Punched Card Volume Requirements.*

Since the efficiency of this type of equipment increases as the volume of accounting work expands it is generally considered impractical for use in very small companies. This is caused by the fact that a small company may not have sufficient work to keep the machines busy, or if the machines are kept busy the efficiency would be relatively low due to the larger proplant accounting department.

portion of time required in setting up the machines to run low volumes of cards for various reports. Punched card work in connection with the card processing must be organized in such a manner as to permit the complete performance of a function rather than performing the work in sections or a little bit at a time. Other systems generally provide for a subdivision of work in such a manner than one person having performed preliminary work will, for example, prepare a journal entry for a specific source of charge or company while another person will do similar work for another source of charge or company. As it has been previously illustrated, the punched card method prepares all of the journal entries at one operation to save the loss of time that results from repetitive machine setups.

There are outstanding exceptions to the above principle, however, as is the case in a small company in Ohio that owns about 20,000 stations. This company has been able to make use of a "mark sensing" toll ticket to eliminate the manual punching of cards and as a result they are doing a customer billing job that is economical, efficient and provides more information than it was previously practical to obtain.

An alternative that certain companies both large and small have used in order to get some of the punched card advantages is the McBee Keysort System. This system uses a unit card that is the same size as a punched card but differs in its use in that it has punched holes only along the four edges of the card. By notching out the holes with a hand punch, the cards can be sorted very quickly to any desired sequence by using a long wire or needle to pull out unnotched cards. The McBee card also lends itself very well to use as an original report or a source document which eliminates some transcription. The accumulating and tabulating of reports is, of course, done manually using the cards as the media.

ACCIDENTS—THEIR PREVENTION

By ROBERT McALPINE
Illinois Bell Telephone Co.
Chicago, Ill.

THE Illinois Bell state area plant personnel is very happy to have been asked to present to this convention some of the things that we are doing in combating our ever present enemy known as "Accidents." We believe that the best and most effective way to approach this subject is first to show you how plant men are actually injured. This we will do by showing a motion picture training film entitled "How It Happened." This film was produced by the American Telephone & Telegraph Co. and covers a review of several accidents that actually occurred at various locations throughout the Bell System. Following the showing of this picture I will briefly review the state area accident record and will tell you something about our accident prevention program.

* * *

Now that you have seen how thoughtlessness, carelessness, violation of safety rules and ineffective supervision cause our plant employes to be injured, you are no doubt wondering just what the answer to this problem is, also what methods or plans can be employed to prevent accidents from occurring and to keep the injury rate under control. This, of course, has always presented a great challenge to supervision and is a problem worthy of extensive study and consideration. Our accident record in the state area plant department during the past five years, while it has not been perfect, has been continuously improving and we would like to take just a few minutes of your time to tell you very briefly something of the method we have used to effect this improvement.

Prior to 1942, our accident prevention program had proven inadequate and our lost time accident frequency rating was extremely high in comparison with the Bell System. However, during the latter part of 1942 the American Telephone & Telegraph Co. developed and made available to all operating companies an idea known as the "Safety Observation Plan."

This plan is very simple to administer and consists primarily of a sampling and recording procedure for determining the frequency as well as the cause of unsafe work practices or errors in operation, so that preventive efforts may be more effectively focused where required prior to the occurrence of injuries. In other words we scratch where it itches most.

The plan specifies four provisions:

(1) Making observations of work in progress.
(2) Recording unsafe practices observed on special forms.
(3) Determining the underlying cause or reason the unsafe practice occurred.
(4) Taking measures or action leading to the elimination of such unsafe occurrences.

Unsafe practices include the use of unsafe tools, material and equipment as well as any unsafe order of procedure in performing the work which indicates a lack of planning or failure to take into account all the circumstances surrounding a particular job.

All unsafe practices observed are discussed with the employe or employes involved at the time of observation. The discussions include, if necessary, a review of the existing related instructions such as safety practices, regulations pertaining to the operation of motor vehicles, safety codes, and other departmental instructions.

As appropriate, recommendations are made for additional training projects, preparation of new or revised safety practices, safety codes, or other instructions, as well as improvements in tool or plant design, which in the opinion of the supervisor appear to be justified in the interest of safety.

A safety observation consists of closely watching an employe or two or more employes perform their work.

These observations are of two types "Scheduled" and "Routine."

A scheduled observation is when a supervisor observes an employe or employes as a result of having scheduled the time for the express purpose of watching the performance of work to detect any occurrence of unsafe practices. Usually this type of observation requires about 20 minutes. Frequent observations are often desirable, particularly for the new or less experienced worker.

Routine observations are those which are made at any time other than during scheduled observation periods and are recorded as "routine" unsafe practices observed.

The success of the plan depends largely on two features:

(1) It should be made clear to all employes that the person making the observation is not acting as a policeman and that identities are not considered an essential part of the plan. Further, any unsafe act observed is not considered a personal indictment against the employe.

(2) The supervisor making the observations must be able to quickly recognize unsafe acts when he sees them and then take immediate and appropriate action.

Our supervisors from the top level down have accepted this plan as being superior to any previously used and this confidence is constantly being strengthened by the steady decrease in lost time accidents during the past six

years. In 1942, at the time the plan was adopted, our lost time accident frequency rating was 11.38 cases per 1,000 employes. In 1948, we reached an all time low of 2.03 cases per 1,000 employes. Of course, you realize that due to the briefness of my alloted time it has been impossible to give you more than a brief outline of the "Safety Observation Plan," but if any of you are interested we will gladly furnish you with copies of this plan.

In closing, let us leave this thought with you—we in the telephone business know that we cannot afford to permit our employes to be injured and we, therefore, are constantly striving to teach our people to believe that no job is so important and no service is so urgent that we cannot take time to perform our work safely.

Industry's Responsibilities

(Concluded from page 21)

has to be borne by the rural subscriber himself.

Clyde T. Ellis, executive manager of the National Rural Electric Cooperative Association, has written to many small Independent companies presenting arguments favoring the Poage-Hill Bill for putting the Rural Electrification Administration in the telephone business. He used a 35-year loan at 2 per cent to lure them to support rural telephone legislation. The sponsors of the bills are not interested in protecting existing small Independent companies. If they are, why do they object to an amendment of the bill which would prevent duplication of existing telephone plants and competition with existing telephone systems?

The telephone industry is roughly 70 years old. It was built by individual initiative and private financing. Although the industry is 70 years old, it has doubled the number of telephones in the last 10 years. . . .

This nation has the finest telephone system in the world. Additional telephones, both urban and rural, are being added as fast as manufacturing and construction ability will permit. Those who have built the telephone system of this nation deserve commendation, not condemnation from our government. . . .

It seems to me the greatest help Congress could contribute toward making telephone service available to all who wish it would be the removal of burdensome and crippling federal taxes from the industry.

The solution to the rural telephone problem is not 2 per cent money. It is adequate rates to pay the cost of operating and maintaining service and to obtain adequate earnings. If a telephone system is not operating on a sound financial basis, it will fail just as surely on 2 per cent money loaned to it by the federal government as it will on 4 per cent money obtained from private investors.

The prosperity and welfare of this nation is based upon production and trade. Production has reached its present high standard under a system of free enterprise. Our free enterprise system can, and properly should, be beneficial to all who participate in it. It is only when trade is beneficial to all parties engaged in it that it is on a satisfactory basis. Under such circumstances, all benefit. A person should be interested in the value of the service which he renders as well as in that which he receives.

Let's consider the value of telephone service. It is a mystery to me how it can be so necessary and so valuable that it becomes a matter of national legislation and yet to hear cries that if the rates are raised sufficiently to provide the necessary revenue to pay the cost of rendering the service and make the company a sound business enterprise, subscribers will be lost.

The Independent telephone industry is an outstanding example of opportunities of free enterprise for small business. The most dangerous threat that we have to this opportunity is that rates will be established in small exchanges and for rural service which will be below the cost of rendering such service. This can come about through rates fixed on a statewide basis, with those for small exchanges and rural service on an inadequate basis and the losses absorbed by larger exchanges; or it can come about as a result of subsidizing such service through some goverment agency. Regardless of what may produce such a condition, it will remove from the field of small business and free enterprise, the opportunities that now exist.

It is said in the Good Book that a laborer is worthy of his hire. Telephone service is a valuable service. Certainly one who has need for this service should be willing to pay a rate that will properly compensate those who are rendering the service to him.

Since telephone service is being recognized as essential today, it behooves every Independent telephone company to adjust its rates and to place its operations on a sound financial basis and to do this as early as possible. Rates should be placed on a basis that will permit the companies to provide for the growth in telephone communications in the communities they serve. Let me urge again that adequate rates are necessary in order to have adequate earnings to obtain necessary capital for plant improvements and extensions and to obtain efficient and competent personnel to render the service desired in the communities in which we operate.

As one travels from east to west, from south to north, he realizes the bonds of the love of freedom that bind this nation together. The strength of this nation is in the things which we voluntarily do and not in the things we are forced to do. Its strength is the sum total of the strength of the individual citizen. You cannot have a strong nation composed of weak, dependent, regimented citizens.

In a free country, a citizen has the authority to direct his own efforts and with that authority he must take the responsibility that goes with it.

We in the Independent telephone industry have freedom in our undertakings in the furnishing of our communities with telephone service. With this freedom goes the responsibility of keeping our operations upon a sound financial basis and providing adequately the telephone service requirements in the areas we serve.

Report on USITA Activities

(Continued from page 24)

exchange rate problems — simplicity, flexibility, expedition.

Washington Trends

Because my labors in your behalf are to a large extent in Washington you may naturally expect me to say something about that very interesting place.

Gentlemen, although I am by nature an optimist I want to tell you that the consistent discouragement of free enterprise in that city should give all thinking Americans cause for concern. . . .

Did you know that the Washington which in 1920 had a population of 506,588 now has 1,402,000, and that almost two thirds of the families are supported out of the public payroll?

Until not so many years ago we in the United States enjoyed a concept of

(Please turn to page 92)

This is more than just a fine magneto telephone. For buying this Leich 900 magneto telephone is like buying an insurance policy on the future.

You're insured if you convert from magneto to common battery operation. Simply removing the generator and changing a few wires converts this Leich magneto handset to a regular common battery telephone.

You're insured if you convert to dial too. A special dial mounting bracket makes the addition of the dial a simple matter.

Like buying an insurance policy for thu

You're insured also on the matter of wall and desk installations with this Leich 900 magneto telephone. For this one telephone, just as it is, can be used for wall or desk installations.

How can you go wrong on such an investment? Even if you never did convert your exchange to common battery, this Leich 900 is the smartest investment you can make. More compact, more attractive than you ever expected a magneto telephone could be, it is built to gives the long trouble-free service for which all Leich telephones are famous. The sensible location of the generator crank makes it easier to operate — with *either* hand.

Truly, here is a magneto telephone that was designed to give you more for your money. In every way. If you don't have our catalog on the Leich 900 magneto telephone, write today. Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

1 THE SAME TELEPHONE IS USED FOR WALL OR DESK MODEL. If your subscriber wants a wall telephone you mount this Leich magneto handset on the wall. If he prefers a desk model, just set it down. That's all there's to it. It's not necessary to change or add or subtract a single thing. Here you actually have two telephones in one. This one telephone is the right one for every installation. Saves time, money, space . . . and headaches.

2 REMOVE THE GENERATOR AND YOU HAVE A COMMON BATTERY TELEPHONE. This Leich magneto telephone can be changed over to common battery operation in about five minutes. This can be done at the subscriber's premises. First - remove the generator. Four screws, three spade connectors. Next, change a few wires which changes the circuit to common battery operation. No soldering. Then remove the generator face plate. Two screws. Add a dial blank, two screws, and you have the equivalent of a Leich No. 600 common battery telephone.

LEIC AN

thuture

EIC ANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

dual sovereignty, a concept of states rights with a federal government of strictly limited powers. States rights will still be found in any lexicon on civics but I am afraid only as a term applied to what is now considered an outmoded political tradition unsuited to the purposes of those whose do-good and welfare-state philosophy of government is in the ascendency.

It will come as no news to this intelligent audience to be told that many of the rights which we had supposed were guaranteed by our basic law are being nibbled away.

You have of course heard about the little boy who was asked about the meaning of the famous picture "The Spirit of '76." He said, "Well, in it there is one man with a fife, another man with a drum, and there is a third man with an awful headache." That is what America has today. As someone down our way has remarked, nowadays we must stay in a perpetual state of war in order to have peace, we must be debt-ridden in order to be prosperous, we must forego saving in order to be secure, and we must even give up our liberties in order to be free.

It is all costing an awful lot of money. It is perpetuating a confiscatory system of taxation that is destructive of an incentive that has been the mainspring of an economic system so superior as to have aroused the envy of the world. We seem to be practicing a form of financial fantasy. . . .

Handouts and circuses in the decadent days of the Roman Empire were the earliest forms of subsidies to the mass of people. Subsidies handed out in our own time are different in form but no different in ultimate purpose.

Any student knows that history is dotted with the melancholy tombstones of efforts to build a sound economy by doing for the people what they should do for themselves. The great economic advancement that has everywhere been witnessed in this free country of ours up to the present generation was certainly not sired by the philosophy of vocal do-gooders who seem to believe the public treasury is a public alms house where everything should be free.

Those who are looking to the government for so-called easy money are merely enjoying an iridescent dream that will certainly fade when the sunlight of reality finally beams upon them. Let not the shimmering mirage of government handouts blind us to the extraordinary evils of accepting them. . . .

In all of these things the choice is with the people. While much leading is done by do-gooders who hold office along the banks of the Potomac it must be obvious that it is the people who vote in the states who are the key to the nation's future. How to arouse the people is certainly not primarily a function of telephone companies as such. But it is truly a function of telephone people as *American citizens* and of people in all other forms of business enterprise who are ultimately called upon to pay the bill in terms of taxes and in terms of deprivation of liberty which their exaction and collection produce.

If free enterprise is preserved in this great country of ours it will not be done in massive edifices in Washington constructed out of public revenues. It will be done by legitimate business through the force of the logic it presents and by the success of its efforts to educate the American people as to the superiority of our way of life. . . .

Rural Telephone Legislation

(Continued from page 27)

from such sums as are made available by Congress.

Initial hearings were held before the senate committee on June 11 of this year, at which time Senators Langer and Hill, the executive officers of three REA cooperatives and REA administrator Wickard appeared in behalf of the bill. Subsequent hearings began on Aug. 3 and concluded on Aug. 10. Clyde Ellis, executive manager of NRECA, quarterbacked the proponents, which included 11 small Independent telephone operators who had been unable to borrow money for improvement or expansion of their own companies, seven officers of REA co-ops, and six farm bureau organizations. Incidentally, I was personally honored by having a newspaper man from one of my own towns, where a full dial exchange serving over 1,100 subscribers is in process of installation, appear before the senate committee to castigate my own telephone service, in retaliation for the fact that I had opposed with some considerable degree of success, a piece of legislation which he had sponsored in the Ohio state legislature. I have long since learned that those who lead a fight draw many more shots than bouquets.

Witnesses of our association again led the opposition to S-1254. In addition to President Barnes, seven other outstanding and recognized leaders in our branch of the industry presented carefully prepared statements which set forth the tremendous progress already made in placing telephones on farms and the industry plans for continuing this progress. The potential dangers to our industry in providing loans for construction or acquisition of duplicate telephone facilities; the granting of loans to public bodies; the inequity of loaning money at less than its cost to the government; the effect that the proposed legislation, if enacted would have on the available sources of capital to telephone companies; and the destruction of private enterprise through the further socialization of an industry; were all pointed out to the committee in the most logical and forceful maner.

Witnesses of three Bell System companies again appeared in opposition to S-1254 on the grounds that it was entirely unnecessary in view of the progress being now made by the commercial companies. The chairman of the Public Service Securities Committee of The Investment Bankers Association of America offered testimony to show that the cost to the government of the construction program proposed by this legislation would be in excess of one billion, two hundred million dollars.

After conclusion of the hearings before the senate committee, our association, in a written statement to Senator Thomas, chairman of the Committee on Agriculture and Forestry, continued to express our conviction that rural telephone legislation was not necessary and should not be enacted. At the same time, if in the judgment of Congress such legislation were considered favorably, we urged that the following specific changes or amendments should be made in S-1254:

(1) No loans should be made in any state which now has or may hereafter have a state regulatory body having authority, without first obtaining a certificate of convenience and necessity, and in states where no such legally authorized body exists, no loans shall be made unless the administrator finds on satisfactory evidence that no duplication of facilities will result in any area except where existing telephone systems are unable or unwilling to provide service.

(2) No loans shall be made in excess of $100,000 to any person who furnishes service through a system which has more than 1,000 telephones.

(3) A clear preference should be given for a period of one year from the effective date of the Act, in the receiving and processing to completion by the administrator, of applications received from persons engaged in the operation of existing telephone service in rural areas.

(4) The provision for acquisition of telephone property should be removed from the bill in order that the possibility of public ownership might be eliminated.

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(5) The provision which would permit loans from government funds for refinancing of existing loans should be deleted.

(6) The interest rate on loans should be not less than the over-all cost to the government, and loans should not be made unless the administrator has satisfactory evidence that funds are not otherwise available on reasonable terms.

On Sept. 13 the senate committee substituted H.R. 2960 for S-1254 and, after adding important amendments, reported the bill favorably. These amendments clearly reflected the forceful and logical impressions which our industry witnesses had made in their appearance before the senate committee. As reported to the Senate, the bill contained a definite provision stating, "For one year from and after the effective date of the act, no applications for loans shall be received by the administrator except from persons who on the effective date of this act are engaged in the operation of existing telephone service in rural areas, and each such application shall be processed before action is taken upon any application received from any other person for any loan to finance the furnishing or improvement of telephone service in the same locality."

The bill also contains a provision that, "No loan shall be made to any person who furnishes service through a telephone system which has in the aggregate more than 1,500 subscribers in rural areas, as such areas are defined in this title."

In another section "rural area" shall be deemed to mean any area of the United States not included within (1) the boundaries of any incorporated or unincorporated city, village, or borough having a population in excess of 1,500 inhabitants, or (2) any suburban residential area adjoining any such city, village or borough." "Refinancing" was deleted from the purpose of the act, although "acquisition" was retained.

However, by far the most significant amendment contained in the senate bill, is the one which strengthens materially the unsatisfactory anti-duplication amendment passed by the House. The senate amendment reads as follows: "No loan shall be made under this section unless the administrator shall determine (and set forth his reasons therefore in writing) that no duplication of lines, facilities, systems, or services will result therefrom in any area except where existing telephone systems in such area are unable or unwilling to provide reasonable service."

On Oct. 25, the Senate passed by a voice vote H.R. 2960 as reported by its Committee on Agriculture and Forestry. Prior to passage several further amendments were adopted on the floor of the Senate, including a most important one which removed "public bodies" from the list of eligible borrowers. "Refinancing" was put back into the bill with the proviso that loans can be made for the purpose of refinancing outstanding indebtedness when such refinancing is necessary for the extension of rural telephone service, and the outstanding indebtedness so refinanced does not constitute more than 25 per cent of the total loan. The provision limiting loans to a telephone system with not more than 1,500 subscribers in rural areas was increased to 2,500 subscribers in rural areas.

Conference committees of the Senate and House are now considering the separate bills passed by the two houses. It is quite probable that a rural telephone bill will be passed by both the Senate and the House prior to adjournment, and it will most surely be signed by the President when it reaches his desk. If the senate version of the bill is enacted into law, we will have rural telephone legislation administered by the REA, but it will give existing telephone companies a period of one year after the law becomes effective in which to make applications for loans and prior to consideration of applications for loan from anyone else. It will contain a definite anti-duplication provision which offers protection to existing telephone companies who are willing to provide reasonable service, and it will exclude public bodies or municipalities from borrowing 2 per cent government money to compete with the private telephone industry. Such a bill will be a far-cry from the original bills which were introduced in both houses of Congress during the first week of January this year.

On Sept. 26 the Senate passed H.R. 6008—104 million dollar supplemental appropriation bill for the fiscal year 1950. Included in this amount was an amendment by Senator Hill, authorizing $250,000 for expenses and 25 million dollars for loans under the rural telephone bill.

Within the past week an announcement most significant to our industry was made in *Co-op Power*. It stated that the Rural Electrification Administration in Washington under Administrator Wickard, had set up a section for the purpose of training management personnel to be sent out to guide, advise and assist borrowers of REA funds. Any telephone company, no matter how small, which may be considering making an application for a loan from the REA for rural telephone construction, should give the most thorough and careful scrutiny to the terms of such a loan agreement. You may be sure that the management personnel trained by the REA in Washington and sent out to help REA borrowers, will promote the policies of the REA.

Any telephone company which is a prospective borrower should exercise every precaution to be sure that the acceptance of such a loan does not carry with it the possibility of the loss of all effective control over his entire company. Under no circumstances should you be required to accept or follow the advice of REA management personnel in the operation of your telephone property, as a condition incident to the granting of a loan. It is my opinion that any loan secured by a telephone company from the REA will be under an agreement which will contain much more than the glittering bonanza of 2 per cent money. I refer you to the last paragraph of the existing general agreement for joint use of wood poles between telephone companies and REA cooperatives, from which I quote: "This agreement, and any amendment thereof, shall be effective subject to the condition that, during any period in which the cooperative is a borrower from the Rural Electrification Administration, the agreement and any amendment thereof shall have the approval in writing of the administrator of the Rural Electrification Administration." Can there be any doubt in your mind as to who makes the final decision under that agreement?

You will recall that at the outset I stated that in addition to one face looking backward, the mythical pagan god Janus had another face looking forward. And I suggest that we now look forward. There are two definite courses of action to which our industry should give serious consideration. We should use the period of one year after the effective date of the act to redouble our efforts to provide rural telephone service to as many rural telephone subscribers as possible. Intelligent surveys of the rural sections of each exchange area will indicate those sections where the need for rural telephone service is the greatest and the sections where service can be provided with the least amount of construction work and material. Certainly any telephone executive who is interested in preventing the building of REA co-op telephone facilities in his rural area is going to make every effort within the next year to serve those areas in which he is the most vulnerable. Put yourself on the other side of this picture. REA cooperatives are most likely to go into the rural telephone field in those areas where a substantial number of subscribers can be secured in a contiguous area. The telephone industry has a period of one year from the effective date of the act in which to eliminate

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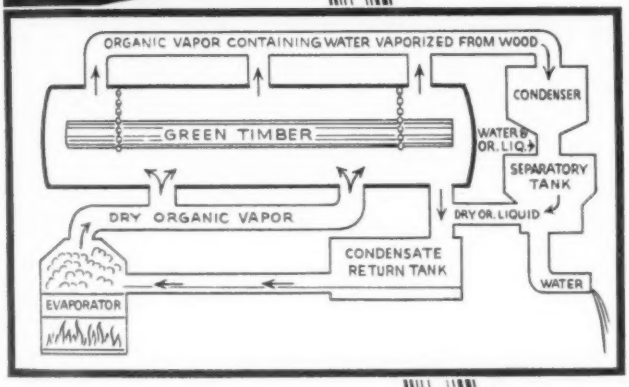

THE T-C VAPOR-DRYING PROCESS . . . . . .

The diagram above demonstrates how superheated organic vapor introduced into the large tank containing green timber (a) distills moisture content of the wood, (b) forces moisture and excess organic vapor into a condenser, (c) separates the water which is discharged from the organic vapor, which is later condensed, (d) and returns organic vapor to evaporator to repeat the cycle.

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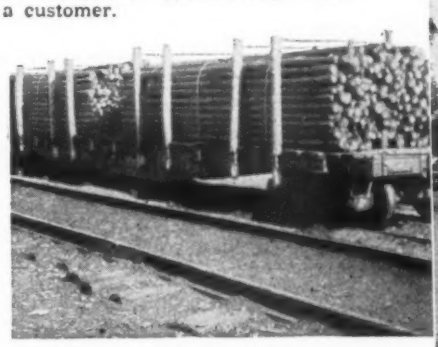
Photo showing installation of T-C Vapor-Dried poles in the suburban line of an Eastern telephone company

Loaded car of Vapor-Dried twenty-foot, class nine poles enroute from Taylor-Colquitt's Spartanburg Plant to a customer.



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the necessity of REA rural telephone construction by completing the job of providing adequate rural service.

This year a state utility regulatory authority was set up in Delaware and now all of the 48 states have utility regulatory authorities excepting the states of Texas and Iowa. However, in only 16 of the 48 states in the United States does the legally constituted local state regulatory authority have complete jurisdiction over REA cooperatives and require a certificate of convenience and necessity before any co-op rural telephone construction can be undertaken. For the protection of our industry and to prevent the duplication of existing rural telephone facilities, we should initiate proper action to subject all cooperatives to the full authority of state regulatory commissions and require them to secure certificates of convenience and necessity, in those 30 states where they are not now fully subject to state regulatory authority. This must be done by an amendment to the existing state laws in each of these 30 states.

The action taken in the state of Alabama within the last two months is an example of what can and most certainly should be done along this line. The Alabama state legislature, in August, enacted legislation which was signed by the governor and is effective concurrent with the effective date of federal rural telephone legislation.

The Alabama Bill provides that (1) No cooperative shall duplicate any services in any area except where existing telephone systems in the area are unwilling or unable to provide service; (2) no cooperative shall construct, purchase or otherwise acquire telephone facilities within corporate limits of any municipal corporation if such municipal corporation is already receiving telephone service; (3) construction, maintenance and operation of cooperative telephone lines shall avoid interference with, or hazards to, existing communications lines; (4) cooperatives engaged in telephone business shall, as relates to that part of the business devoted to supplying of telephone service, be subject to the jurisdiction of the Alabama Public Service Commission in the same manner as are existing telephone companies.

The provisions protecting telephone companies in this Alabama law appear to me to have been carefully considered and clearly protect the commercial telephone companies. I understand they reflect the views of not only the Alabama telephone companies but also of the Alabama Public Service Commission. Certainly if provisions of this character can be passed in Alabama, the home state of Senator Hill and Gordon Pearsons, they can be passed in all of the other states where further protection from REA telephone duplication is required.

It is true that many of the state legislatures meet every second year, and a large part of them met this year and will not convene again until 1952. It is, however, not too soon for state telephone associations and the larger companies to initiate an intelligent campaign to make REA cooperatives fully subject to state regulatory bodies by amendment to their present state laws in the 30 states where full authority does not exist at present.

In the following twenty states telephone cooperatives are not subject to state utility commissions and are not required to secure certificates of convenience and necessity: Arizona, Arkansas, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Missouri, Nebraska, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Utah and Washington.

In addition, there are eight states in which cooperatives are subject to the jurisdiction of the commission, but there is no provision in the present state law requiring certificates of convenience and necessity. They are: Georgia, Mississippi, Montana, Rhode Island, South Carolina, South Dakota, Vermont and Virginia.

In the following four states not mentioned above telephone cooperatives are subject to state regulatory authority and are required to secure certificates of convenience and necessity in all cases except municipalities. These states are: New Hampshire, North Dakota, Ohio and Oklahoma.

My sense of responsibility will not permit me to conclude without again warning you of our continuing drift toward the Welfare State. This creeping paralysis in our national thinking provides a challenge to each one of us who employ members of the most powerful political force today—that great mass of urban wage earners. If the present trend in national government is to be arrested, we must convince the people who work for us of the fallacies of the glittering allurements of Statism.

They must be made to realize that in the end, the workers are the great body of taxpayers who must bear the final cost of all socialistic programs through taxation. Explain to them how their liberties are being seduced by a set of promises which cannot be fulfilled. Call their attention to the example of European countries which have failed in their efforts to improve their standards of living through ownership or socialization of private enterprises. Point out to them the opportunities for advancement by the individual, based on his own efforts under our present system, as against a system of control and regimentation which levels out all individuals regardless of their own ability. Secure a very real and personal interest by your employes in your own company by selling them some of your capital securities. Take them into your confidence by telling them frequently the problems of management. Conduct yourself and your business affairs so that all basis for legitimate criticism of the public utility system is removed.

We must restore public confidence in the "free enterprise system" as the cornerstone of our national economy. Most of us have spent the best years of our lives in the telephone business. It is still our business and we must protect it. This is still America and America is worth saving. The challenge of Statism versus Individualism is unmistakable. It is ringing clear as a bell in the ears and the mind and the heart of each one of you. It is a clarion call to the defense of our American system of free enterprise and individual freedom, lest—it—be—too—late.

I ask you solemnly, what are you doing to rise and answer that challenge?

Meaning of Service To Management

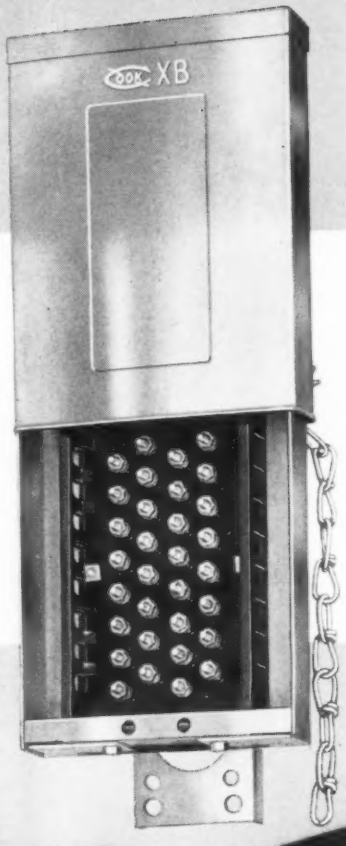
(Continued from page 33)

Let us consider the completion of long distance calls, our most important and profitable service. Fifteen years ago it was a point of personal pride with our long distance operators never to give up a call until every resource at their command had been utilized. They added brains, enthusiasm and ingenuity to their routine instructions. The Mountie, who always gets his man, had nothing on our long distance operators. That is not quite the case today, I am sorry to say.

We have suffered a similar loss of job pride in other departments as well. I need not go into detail. All of you who were in this business before 1930 know what I mean. You know that something essential in spirit and enthusiam went out of our service during the period that brought us the Wagner Act and World War II.

Our men and women are still good Americans but some of them have lost,

THE INDEPENDENT TERMINAL TEAM MARKS UP WINNING SCORES SEASON AFTER SEASON



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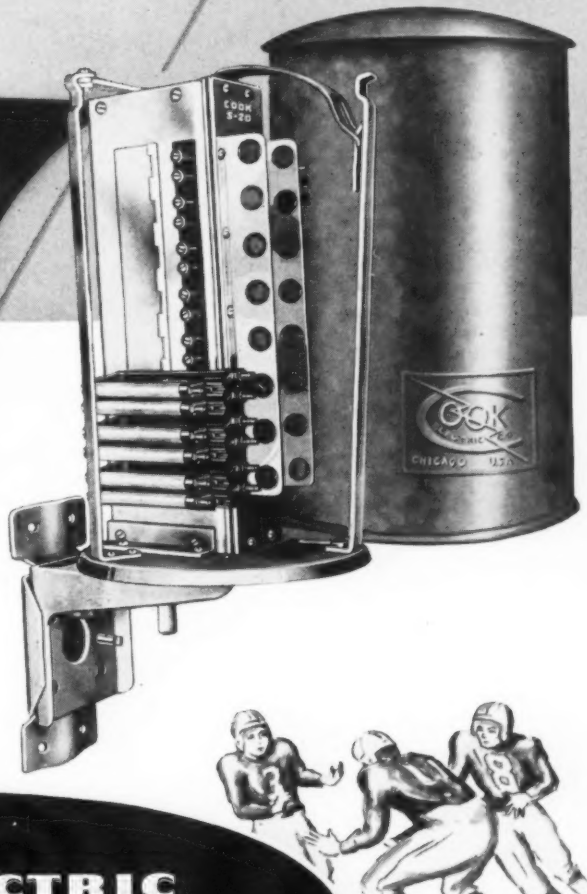
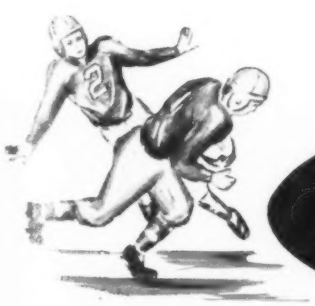
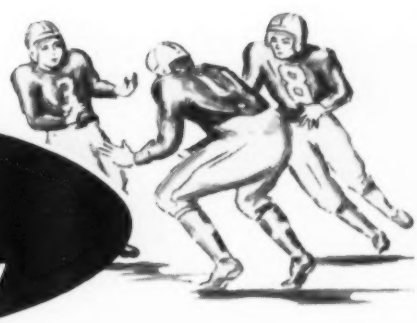
COOK S-20 POLE CABLE TERMINAL



For "teamwork" the S-20 provides combined protected and unprotected factors together with primary and secondary arresters - always a winning combination. The H-20 backfield for quick protector unit installation is favored by line men everywhere.





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and others are so young that they never have known, that personal pride of accomplishment that gave life and soul to our routine methods. It is our problem to restore that pride of accomplishment which will improve our service greatly. In doing so, we shall have gained more than a dollar return, we shall have given real service to the cause of that American ideal we revere.

Previously, I mentioned briefly our relations with the regulatory commissions. The rendering of good telephone service is of the utmost importance in our dealings with those bodies. It is my suggestion that each and every one of you make it a practice to call regularly upon your commission officials to discuss informally our mutual problems. You will find them sympathetic and helpful. In other words, a spirit of cooperation is developed which cannot be achieved in any other way. Our formal contacts with commissions usually fall into one of two categories—response to complaints and applications for higher rates. If our service is reasonably efficient, we need not worry unduly about the first. If, on the other hand it is bad, we may expect trouble. In a few cases the commissions have actually gone to the extreme of punitive action. In 1948, the Michigan commission, following the lead of the Florida and Georgia commissions, compelled a small company to reduce its exchange rate to $1.00 per month as punishment for failure to render adequate service. The commission said in part:

"The right to charge rates that are adequate to cover the full cost of the service is conditioned upon the service being adequate both in quantity and quality. Rates follow service, not service rates."

I cannot agree with that philosophy. It would be grossly unfair in most cases of the smaller Independent companies. Most of these companies could not possibly improve their service or finance their necessary plant extensions unless they were first granted adequate rates. It naturally follows that such companies must have a definite program of plant rehabilitation and plant expansion for the securing of increased rates. If, after the increased rates are granted, they do not meet their commitments, then they may expect that the commissions will take further action, either by reducing the rates previously given them or by demanding that they fulfill the promises made.

I cannot stress too strongly that without adequate rates, good telephone service cannot be rendered. The entire Independent telephone industry has suffered from decades of undercharging for its services. In too many cases, rates have been too low to pay for adequate maintenance, with a result that the service has deteriorated to a point where sufficiently higher rates could not be justified. That is a vicious circle with a vengeance.

Quite often, higher rates could have been secured easily with the sympathetic support of the utility commissions but seemingly, there has been a reluctance on the part of too many of the smaller Independent companies to seek adequate rate adjustments. We tend to overestimate public hostility to rate increases. When hostility does develop on the part of the public, it is generally due to lack of information and ignorance of the facts which could so easily have been dispelled in advance. A proper publicity program and full discussion with the commissions in advance of filing applications for rate increases, pay handsome dividends. Please bear in mind that the first requirement of the majority of our subscribers is good service, not cheapness of service.

A revealing statement regarding the need for higher rates, came from the Illinois commission in 1948 when they allowed a rate increase less than was requested. It follows:

"Present operating conditions and times are abnormal and the company itself is not free from fault in allowing its rate schedule to become such as to impel it to apply for a very large increase . . ."

In other words, if we lack the courage and the energy to apply for adequate rates as soon as our present rates become inadequate, we may not get all we are entitled to when we are finally forced by events to take the plunge.

We have our financing problems, the solution of which is so vital to the rendering of good telephone service. Charles F. Mason, chairman of the board of the Associated Telephone Co., recently said that the three most pressing problems facing the Independent telephone industry in California, were, "Money, money, money." That comment is of general application throughout the United States. One of the conditions in which our industry differs from that of the ordinary merchant is the need for continual addition to our capital structure. A store or a hotel purchased with a certain initial capital, may be operated for a lifetime without any additional capital outlay. Operations consist of the purchase of supplies and the replacement of wear and tear out of income. With us, however, every application for a new service involves a capital outlay for subscribers' equipment and perhaps poles, wire and line hardware. Every few hundred of such installations involve an expenditure for new switchboard facilities. Satisfactory financial arrangements are essential to our service as Independent operating units.

That has been so well discussed for many months, and at this convention, in connection with the rural telephone bills now before Congress, that I need not say any more than this. If our plant is good, if our service is good, if our rates are adequate, we can obtain the necessary funds for our essential growth through the ordinary commercial channels. Easy money from government, with government ownership as the price of default, is something to be shunned like any other un-American socialistic device. Few Independents are likely to succumb to that temptation, but we must face the fact that these left-wing, easy-money allurers, with a socialistic string on them, are a danger. Every manager of a larger Independent company should do what he can to assist the smaller Independents to protect their service with adequate and normal financing. Our standards of service are not an individual company problem. We share a common interest; a common responsibility.

To summarize briefly, it behooves every telephone manager to consider the service he renders in the light of these requirements:

(1) It must be good enough to insure good relations with the public and with the regulatory bodies.

(2) It must be sold at rates that will insure such profits that he can (a) pay his employes fair wages which should command their efficiency and loyalty; (b) pay an adequate dividend to his investors, and (c) finance his necessary plant additions without the loss of his economic freedom of action.

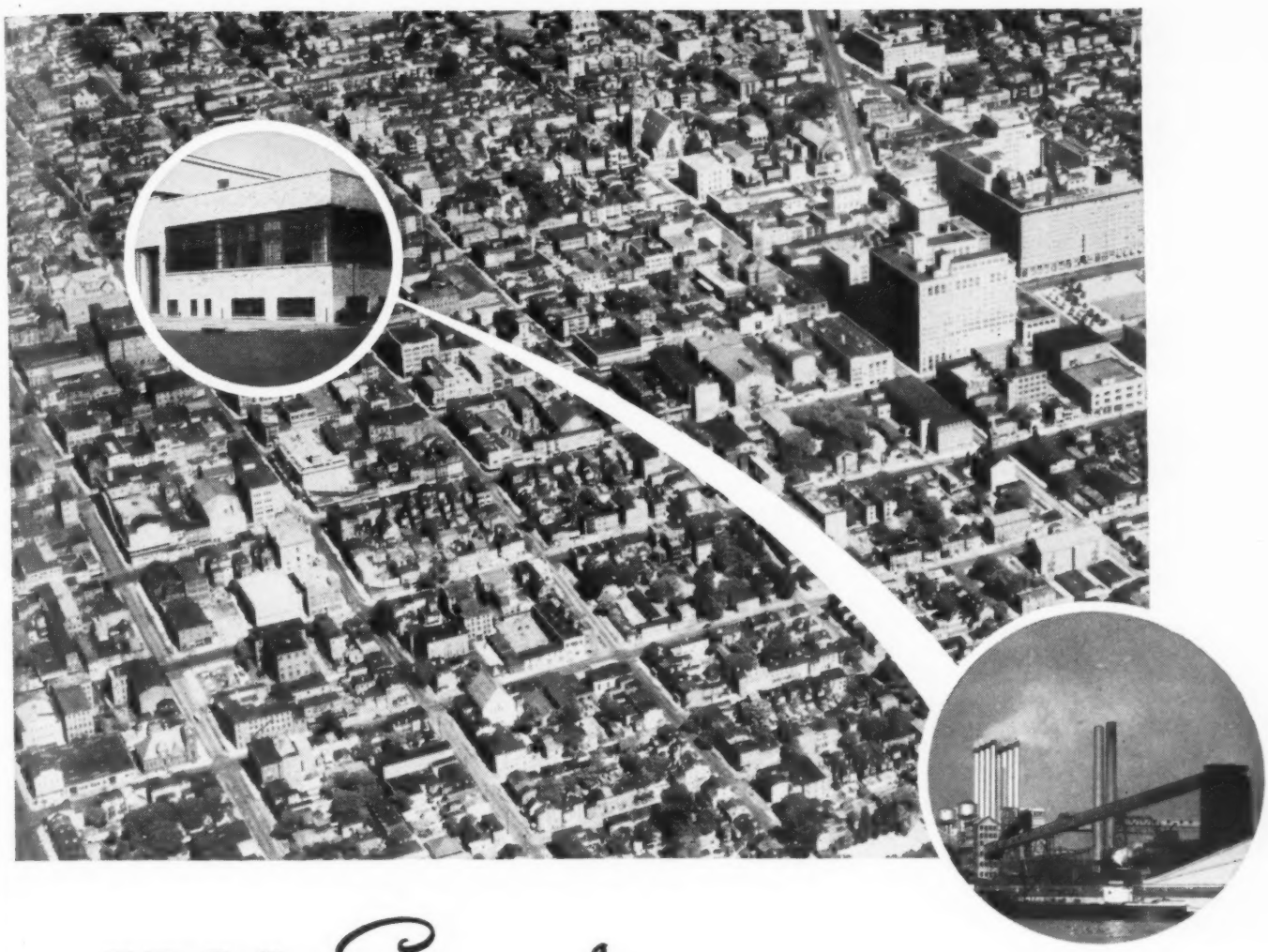
New Developments, Techniques

(Continued from page 35)

with respect to reuse. They are similar to carrier systems in this respect.

(3) Microwave links should offer better continuity of service and lower maintenance costs for many situations as they are not affected to the same extent by many of the conditions which cause serious trouble on open wire telephone lines.

Independent telephone men have been asking for some time, "Where do we fit into the television picture?" An examination of the current situation may be of interest. As you no doubt know, the Bell System is taking the initiative in providing transmission facilities between major cities for television chain programs. This is being done by means of microwave link systems and/or coaxial cable. It is obvious the Independent telephone companies will, as time



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goes on, have the opportunity to connect with Bell System microwave or coaxial facilities in order to extend these links into the larger cities served by our companies. There will probably be much less of this type of "tie-in" than has been the case with radio broadcasting as it seems unlikely that television will be as widespread in its coverage as is radio.

Independent companies can also be expected to be called upon by television stations to provide transmission facilities between television pick-up points and television studios. This service is comparable with that of providing cable pairs between a radio broadcasting station's pick-up amplifier at a football stadium and the downtown studio.

Unfortunately, we cannot provide facilities for TV program material by simply setting aside a vacant cable pair as we do with radio voice frequency pick-ups. The transmission of video program material requires a facility which will handle, without excessive distortion, frequencies as high as six megacycles. It is, of course, possible to transmit TV program material over short lengths of ordinary exchange cable but considerable technical skill and high priced equalizing equipment is required when this is done.

However, there has recently been developed a twin conductor low loss cable pair suitable for handling TV program material in exchange plants. It consists of 16-gauge copper conductors each insulated by a spiral wrapping of a low loss plastic material with the two conductors held together at a spacing of about three-sixteenths of an inch by means of a spiral plastic wrapping. A copper ribbon encases the two conductors and acts as an electrostatic shield. This new cable may consist of one or more of the video pairs, or it can be obtained as a complement of a composite exchange cable, i.e., mixed with groups of exchange pairs.

Independent companies operating in the larger centers where television stations are likely to be established should consider the desirability of providing special video pairs in any new exchange or toll entrance cables which may be prepared along routes which would be logical feeds for future TV program pick-ups.

Bell System companies are not only providing the twin conductor type of video cable in some localities, but they are also furnishing microwave links for getting TV program material from one point to another in an exchange area. A typical example of this new service by telephone companies was the Indiana Bell's handling of the memorial day speed classic at Indianapolis. Here they provided both a video cable pair and a microwave link.

Whether or not Independent companies will wish to provide other pick-up facilities than video cable pairs is, of course, a problem which will need to be worked out by each individual company. It would appear that telephone companies should at least anticipate the future requirements of TV stations for video cable pairs in an exchange area when engineering new cable plant. It should be cheaper to provide any required video pairs in a composite cable than in a separate video cable, if a reasonably good guess can be made of future TV video pair requirements.

Back in 1915, labor was cheap and plant materials, by comparison, relatively expensive. Now labor is expensive and materials, while not exactly cheap, play a less important part in plant cost studies. One answer to rising plant costs is mechanization. Many operations such as digging, drilling, tree trimming, brush spraying, sawing, etc., are all examples of work operations which can be done much more cheaply by motor or engine driven tools than by simple manual methods. Yet, in spite of the acknowledged savings which can be made with mechanized construction forces, there are still hundreds of companies doing it the hard —and I might add—the expensive way.

As a typical example of doing an old job in a new labor-saving way, I cite a company in Indiana involved in a large construction project requiring installation of a large amount of aerial cable on rural poles. In a carefully planned, high-speed operation one man was stationed on each of four poles. With a hand line each in turn pulled up an electric drill and bored the hole for the cable hanger. As the truck carrying the generator passed along to the next pole, the lineman on the preceding one, bolted on a strand clamp and then moved on to the head of the line to await another turn.

After the strand had been placed and pulled, a truck pulling a cable trailer brought up the rear of the procession. Level ground and the absence of numerous trees made it possible to feed the cable directly from the trailer to a cable spinner which lashed it to the strand. On each pole a man was waiting to cut the lashing wire, clamp it to the strand, and move the spinner around the pole to start on the next span. This assembly line technique plus motorized tools saved an estimated 25 per cent in labor.

Some of the first hole diggers offered were large elaborate outfits, the cost of which was beyond the application needs of the smaller companies. This situation has been materially changed and now efficient hole digging units are available at prices well within the reach of even the smaller companies.

The relatively new winch line suspended digging augers, which attach to front or rear mounted booms are proving popular with both Bell and Independent companies. These units are much more flexible in their application than the rigidly mounted truck rear end type and can easily be maneuvered to reach most hole locations.

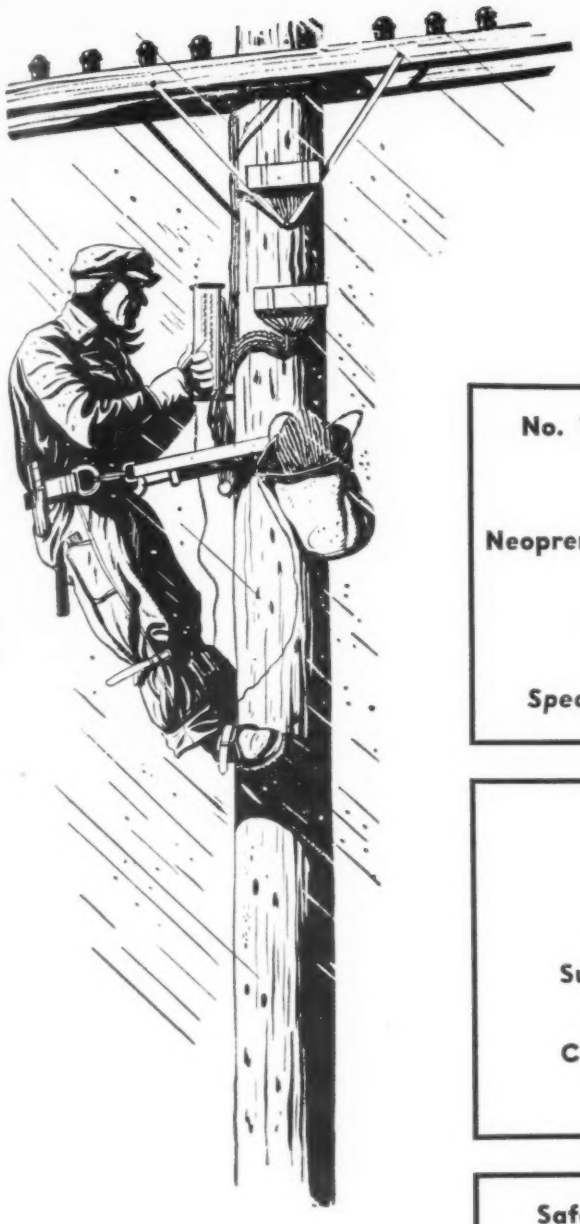
Electric hole digging drills are continuing to find application for small crews and particularly for those exchanges in which a manager and one helper may constitute the entire construction and maintenance force. There is a trend toward 180-cycle power sources for portable equipment as this equipment offers the advantage of lighter weight for a given h.p. than does 60-cycle equipment. Typical of the 180-cycle equipment is the new light weight chain saws. Difficult tree limbing operations can be handled with ease and speed with one of these new saws. Labor savings as high as 60 per cent or better can be shown in tree trimming operations by mechanization.

Mechanize your cable maintenance and tree trimming truck, provide a truck-mounted ladder to cut down on climbing time and effort, and you will be surprised at the savings in labor costs which will result.

The control of tree growth has always been one of the plant manager's greatest headaches. Annual tree trimming costs are so high in many exchanges as to be of real concern. The attack on this problem has consisted of everything from simple annual tree trimming to complete removal of all tree and bush growth by expensive bull-dozing operations. Bull-dozing offers a solution to the tree problem in many situations, but is open to the serious objection of high cost. Some feel the remedy is worse than the ailment. Costs as high as $500 per mile are not unusual for this method.

The newest attack on the tree problem is the use of chemical sprays. The use of chemicals to partially or completely kill tree growth offers considerable promise. Much experience has been had with this method the past two years and with some exceptions the results have been good. Several tree removal companies have conducted extensive experiments and are now offering chemical spray service.

There is nothing complicated about the method, nor is the equipment required particularly expensive. Data on chemicals, dosage and application are



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available from the large chemical supply houses. Chemical methods should prove useful for complete removal of heavy brush growths or young trees. The spray has one disadvantage, viz., there is always a possibility of damaging nearby crops or valuable shade trees due to the chemical spray drifting in the wind. This can be kept at a minimum by avoiding windy days and by proper handling of the high pressure spray equipment. I am sold on the method and feel that every company which has a tree control problem will be well advised to study up this winter and be all set to give this method a serious try come next spring.

The rapid extension of rural power lines has resulted in high noise levels on many of our rural lines. The high inductive influence of present types of rural power lines means the noise can be kept to satisfactorily low levels only by use of an adequate set of transpositions in the telephone line and by well-balanced central office circuits.

The new Bell System R-1 and R-2 transposition schemes are simple yet surprisingly effective in keeping noise levels low on short haul toll lines. These schemes are simple as compared to the standard transpositions schemes normally employed on toll or exchange lines. They consist in transposing each pair at every other pole. Transpositions on horizontally or vertically adjacent pairs are staggered so as to fall on different poles. Control of crosstalk between pairs not horizontally or vertically adjacent is accomplished by the omission of certain transpositions on each 25th pole. The R-2 scheme is the same as the R-1 except spacing between transpositions is doubled.

In the humble opinion of your speaker, plant executives seeking ways to reduce plant maintenance expense should make a careful analysis of the cost of locating station and line troubles. The combination of antiquated instruments and inadequate training found in some plants can easily account for labor efficiency losses as great as 50 per cent. Despite all that has been said regarding the advantage of multi-range direct reading ohmmeters for general trouble shooting, I was surprised to find on a recent field trip many companies still using only test telephones to locate both live and instrument faults.

Trouble-shooting is like rifle-shooting —you need training and practice and a good "instrument" with which to do the shooting. Give this some thought when you get back home. Find out if your men are equipped with adequate testing instruments. Determine if they understand how to use them for high speed trouble shooting. You may be paying for three men to do a two man job.

If necessary, set up a refresher training course. Show by classroom demonstration how faults can be located in a minimum of time. Minimize the troublesome "call back" type of troubles which cost you money and the subscriber annoyance. Set up a long range instrumentation program which will insure your getting maximum results from your trouble shooting dollar.

High voltage flashing techniques for the location of moisture troubles in cable are becoming very popular. The method, though not new, has for various reasons been used extensively only these past few years. It consists in applying approximately 450 volts of dc potential from a "B" battery source to a pair which shows moisture trouble but which has such high fault resistance it cannot be located by ordinary methods. The high voltage creates an arc between the two wires of the pair at the point where moisture has entered the cable. The resulting arc welds the pair together, creating a zero resistance short which can readily be located by a tone induction test set. The troublesome "carry-by" effect which is typical of most moisture trouble is eliminated by using the shorted pair for locating the fault. Furthermore, you can determine the approximate location of the fault by simple loop resistance measurements.

The head of the cable department of a large telephone company recently told me he had cut his moisture fault location time 50 per cent simply by using the flashing technique on all moisture faults. Development of special flasher sets which eliminate the human hazard inherent to the use of high voltage "B" batteries has accelerated the adaption of flashing techniques. Put this method down on your list of money saving methods worthy of consideration.

Pocket amplifiers which operate from hearing aid batteries and which use miniature high gain tubes are finding extensive use in the location of cable faults by the exploring coil method. When flasher sets are used to create zero resistance faults the tone picked up is often very weak though positive in its indication as it has no "carry over." By the use of an amplifier with a gain of several thousand it is possible to get a readily audible and accurate indication.

The amplifier is a real asset in locating faults in buried or underground cable. It is now a standard test unit in the Bell System.

Few telephone subscribers have the opportunity of visiting our terminal rooms or watching our test board and equipment men at work. But a large percentage sooner or later visit the local commercial quarters. Needless to say, in the interest of good public relations, we want these quarters to be convenient and attractive to our customers and efficient for our operations. Opinions will differ as to how far we should go in a commercial quarter modernization program. I have visited with a number of companies which have engaged in modernization programs and all have been very happy with the results obtained, and seem to feel the cost has been well-justified.

The Lincoln (Neb.) Telephone & Telegraph Co. recently modernized the local commercial office in Lincoln and streamlined the business procedures employed. In my opinion the Lincoln company did an outstanding job. Customer reaction to these changes has been excellent and employe efficiency has been substantially increased as a result of the more convenient working arrangement. This project was handled under the able direction of Merle Hale, general commercial superintendent.

Tales of the Nineties

(Continued from page 37)

"I am here," continued the girl, "to enter a formal complaint against your night operator, Miss Patton, who listened to a telephone conversation on my residence line the other night and repeated the conversation to a third party, causing me no end of embarrassment."

The girl was quick to note the incredulous expression on the face of the manager, but continued her story with an air of confidence.

"You may or may not know," said the girl, "that Bob Hammond has shown me some attention. He has also been out with your Miss Patton occasionally. The other night, I received a telephone call from the railroad depot. It was from a boy friend whom I had met while attending college in New York. He was on his way to Montreal. He arrived on a train which was two hours in advance of the one on which he had a Pullman reservation. 'Could we have a little visit between trains?' As the hour was late, I suggested that he pick me up in a taxi and go to 'The Tavern' for a bite and a chat. It was a nasty, rainy night, and we practically had the Tavern to ourselves. There was no one there that I knew. After our visit,

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Acme Telephone FLEXOLINE equipment has been designed to meet the exacting requirements of the Telephone Industry. This particular equipment is ideally suited for INFORMATION—INTERCEPT—TOLL RATE AND ROUTE RECORDS. Combination of these records in the same unit is successfully used.

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⅛" strips. 42 strips per sheet.

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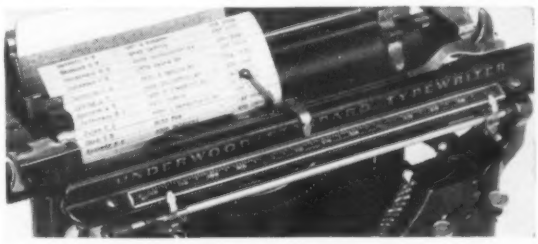
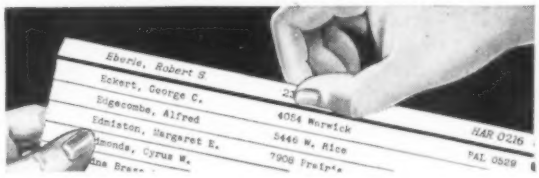
FLEXOLINE is resilient veneer strips in sheet form, surfaced both sides with paper, deeply scored so that each strip can be easily separated. May be indexed on an ordinary typewriter, addressing machine, punched card printer or duplicating machine.



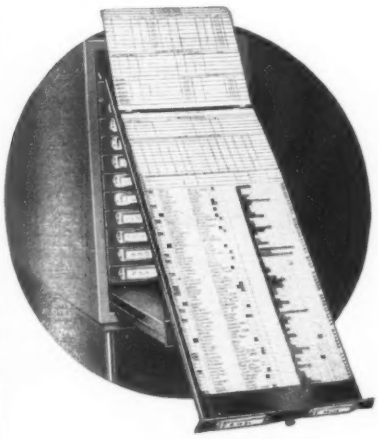
TYPE THE LIST. Roll the FLEXOLINE into the typewriter and typewrite the information as you would on an ordinary sheet of paper.



SNAP APART. To separate the strips—first fold the strip to be removed backward—until it is severed with the exception of the tissue backing, then completely reverse the fold which will snap the tissue backing.

Many other special types of Acme Visible files have been developed to meet the record requirements of the ACCOUNTING, COMMERCIAL, ENGINEERING and PLANT DEPARTMENTS to enable them to reduce operating costs and in many cases eliminate costly calculating equipment.

HERE ARE A FEW OF THE MANY USES:



- Wage Charts
- Toll Tax Record Charts
- Fractional Rate Tables
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If you are interested in reducing the cost of keeping records, or if you have a record problem, our Telephone Systems Department will gladly work with you. We will welcome the opportunity of submitting suggestions.

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the taxi dropped my boy friend off at the depot and took me home.

"The next morning I met Bob Hammond on the street.

"Hope you had a nice visit with your boy friend from New York last night," he said dryly, and, in the course of our talk, he repeated verbatim the conversation of the night before on my telephone. "I happen to know," said the girl as she arose to take her leave, "that Miss Patton was the only operator on duty at the time."

The manager's heart sank as the door closed behind his visitor.

"To think," he murmured, "that on top of my vainglorious and positive declaration regarding the secrecy of telephone communications, this thing had to happen. Surely 'Pride goeth before a fall.'" Had he been in Miss Patton's place, he thought, the temptation to spike the guns of a rival would be ever present, not to mention the old adage "all is fair in love and war."

He reached for the telephone and called the chief operator.

"I would like to see Miss Patton when convenient," he said.

"She will be in at five o'clock," replied the chief. "I'll send her down."

Miss Patton listened attentively to the complaint made against her and when the general manager had finished she said, "I remember handling the call you mention, but I give you my word that I listened to no part of the conversation."

The general manager believed that she spoke the truth.

"There is just one way to get to the bottom of this," thought the general manager after Miss Patton had left and, suiting his action to his thoughts, he put on his hat and started for Bob Hammond's office.

"Mr. Hammond," began the general manager, "a complaint has been entered against one of our operators for divulging to you a conversation that took place last Wednesday night from the Union Depot to telephone number 385."

"In the first place," replied Mr. Hammond, "the call was not made from the Union Depot, and in the second place your operator is entirely blameless. My knowledge of the conversation in question did not come from her."

The general manager breathed a sigh of relief as Mr. Hammond continued.

"The explanation is very simple. I was working in my office that evening and left some time after nine o'clock. I stopped at a lunch wagon on Depot Street to get a cup of coffee and discovered that my watch had stopped. I stepped to the pay station telephone to ask the operator what time it was. As I placed the receiver to my ear, I heard a man's voice calling my girl friend's residence telephone. I placed my hand over the transmitter and listened to the conversation. You will remember, of course, that Joe operates two lunch wagons on Depot Street, one down opposite the Union Depot and another two blocks toward the business section. The pay station at the depot was probably in use and my girl's friend stepped across the street to use the pay station in Joe's lunch wagon. As you probably know, Joe's two pay station telephones are on the same line. Does that clear up the mystery?"

"I'll say it does," replied the delighted general manager. His step was jaunty as he returned to his office, but when he remembered his interview with the rural committee that morning, his gay and easy gait slowed down perceptibly.

"It doesn't seem possible," he thought, "that anyone would prefer the antiquated turn-the-crank system to that of modern common battery service, and yet, for the life of me, I can't think of any argument to controvert Bill's convincing objections. Guess I'll dump this one in the lap of the national association at Chicago."

Having made this decision, which shelved the big problem for the time being, he resumed his jaunty pace.

Getting Along With People

(Continued from page 39)

might well be adapted to the business in which you and I engage ourselves. Let me call one or two of them to your attention.

Among those who have grown more advertising conscious in the course of promoting their business relations are the railroads. During the past few years I have been a commuter between the city of Chicago and one of its suburbs, riding daily the ancient, creaking and outworn commuting trains of the Chicago & Northwestern Railway. One morning last month, our train was delayed in the yards for nearly half an hour. Everyone wondered why, but no one could ascertain the reason. the next morning, upon boarding the train, every passenger found in his seat the following printed notice, resembling somewhat a telephone company bill insert:

"TO OUR SUBURBAN PATRONS"

Yesterday morning, when crossing the interlocking plant at Division Street, the air brake line connection between tank and engine of Train No. 638 failed, making necessary an emergency stop of this train. Temporary repairs were completed as quickly as possible by the train crew, but as a result of this enforced stop other trains immediately following No. 638 were also delayed.

"We sincerely regret any inconvenience you may have been caused by the late arrival of our train.

H. C. DUVALL,
Passenger Traffic Manager.
CHICAGO & NORTHWESTERN RAILWAY CO.

This is the first time I have ever known a railroad to explain anything or to apologize for anything to its patrons. It proved to be smart psychology, and I know that the injured feelings of many of the passengers who had been irritated the day before were considerably assuaged by the reading of this notice the next day. It indicates, if nothing else, a new trend in railroad public relations practice.

While attending the Nebraska Telephone Association's convention in Lincoln last spring, I saw another advertisement which seemed to me to be indicative of the new trend. It was a large display ad by the Omaha and Council Bluffs Street Railway Company. The ad was headed, "The Bus That Went to Benson and Back" and was illustrated by a pen-and-ink drawing of one of the company's buses. The body of the ad read as follows:

"It happened just the other night. A 40-passenger bus left downtown for Benson at 5:15. It carried 69 passengers, many of whom had to stand part of the way. On the trip back to town that bus picked up just eight passengers. Fares both way totaled $7.70. Based on our fleet's average cost, our expense for this trip was $5.11, leaving a gross profit of only $2.59.

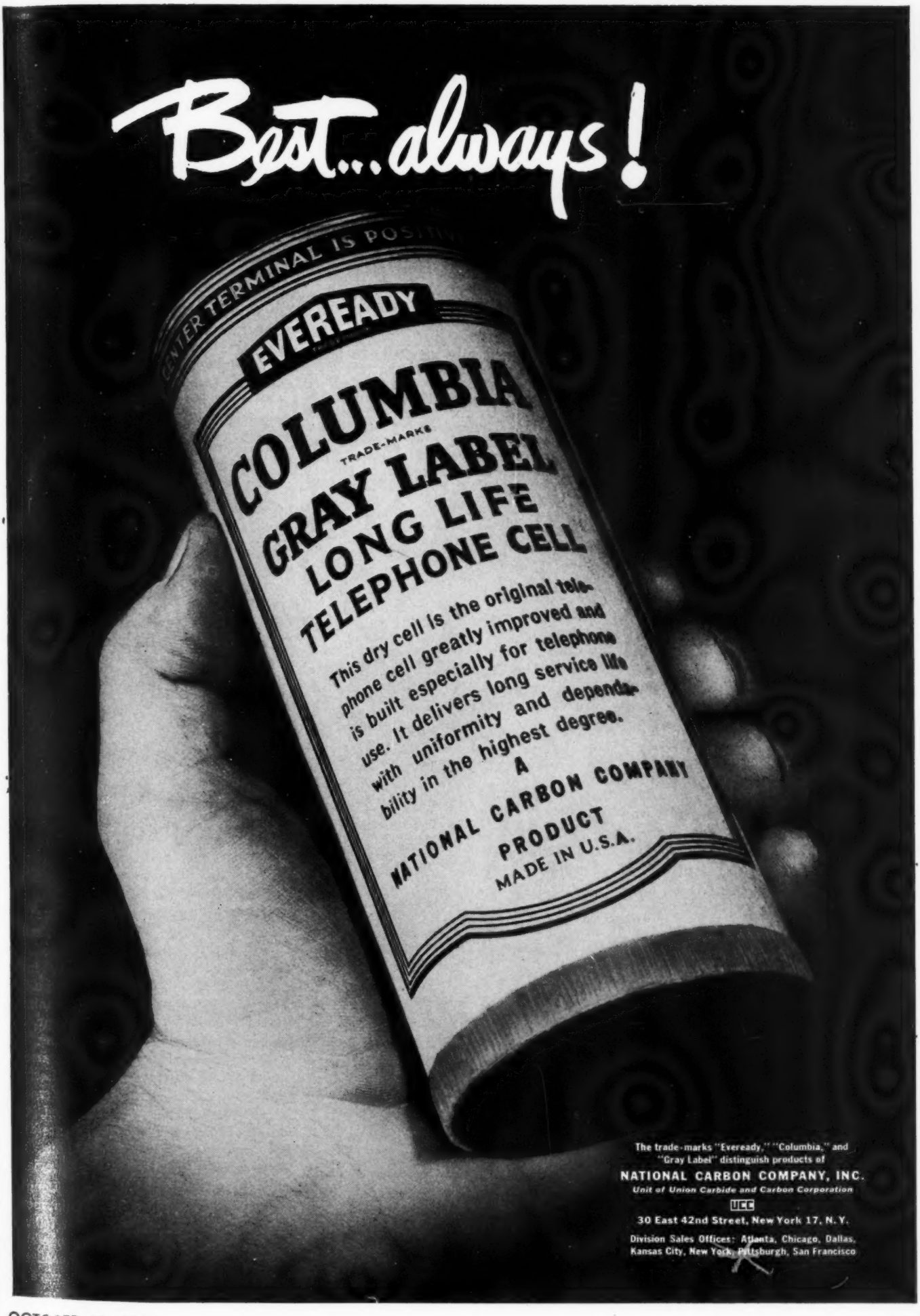
"All the rest of the evening the driver picked up maybe a half dozen to a dozen passengers per trip. The fares from these trips did not even pay the cost of operating the bus! And it's plain there was not enough profit from the rush hour trip to offset the losses.

"This happens because two-thirds of our passengers ride during five rush hours of the day. Those peak load hours are more than offset by the 19 non-profitable hours! Whether buses carry many or few passengers, convenient schedules must be maintained. Drivers must be paid. Buses must have gas, oil, and tires. Service crews are necessary to keep buses in good, safe, clean condition.

"Today, new 40-passenger buses cost 60 per cent more than in 1940. Wages are nearly double. And all other costs have risen similarly.

"Omaha's cost of living has risen 67 per cent since 1938. Yet, after revision of fares, you will pay only 50 per cent more for transportation than you paid in 1938."

This advertisement impressed me as


Best... always!
CENTER TERMINAL IS POSITIVE
EVEREADY
COLUMBIA
TRADE-MARKS
GRAY LABEL
LONG LIFE
TELEPHONE CELL
This dry cell is the original telephone cell greatly improved and is built especially for telephone use. It delivers long service life with uniformity and dependability in the highest degree.
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Division Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

being an excellent example of the increasing tendency of utility companies to inform their customers about their problem. I know you can readily see that the same principle adopted here could easily be adapted to the various phases of the telephone business, and there is no need for me to go into any detail about it.

There are encouraging signs that our industry is recognizing the need of keeping our subscribers and the telephone-using public better informed about our business and the problems which confront it.

The average person knows no more about the telephone business than you and I know about running a boiler factory. An informed public is an intelligent public. If we keep our subscribers fully informed as to many of the details of our business, which we have heretofore considered none of their business, I am convinced that we will have less trouble when it comes to rate increases, service interruptions and other things which are bound to irritate the telephone-using public on occasions.

I have cited only a few of the ways in which, I believe, we can better advertise in the doing of this most important job of ours—that of getting along with people.

These are dizzy days of taut tensions and turmoil which tax the tranquility of the spirit and make serenity of mind difficult to attain. In meeting our daily obligations, in discharging our burdensome responsibilities, and in conducting our contacts with other human beings, we can make life easier for all of us, I think, by a more fervent nurturing of the spiritual side of our natures.

If our inner consciousness is spiritually fortified we can easier make allowances for those unhappy souls who, because they have no real sense of security, are incapable of real generosity. They huddle together in the midst of a life that is as impoverished spiritually as it is economically, exploiting one another in angry, artless imitation of the worst features of the world that has denied them freedom.

It always has been so, but standing out in bold relief, like a gleaming, shining beacon, is man's inherent and essential goodness and decency.

In his great book, "Peace of Mind," the late Joshua Liebman quoted a brilliant psychiatrist as saying:

"I believe in human beings. The more I analyze them the more I come to see what fine creatures they potentially are. The unpleasant things in life make so much noise that we forget the silent operation of the good. Evil is aggressive, rampant, but good is quiet, undemonstrative. Like the law of gravity itself, it is constant, irresistible, still. Deafened by the roaring tempests of hatreds we are apt to forget the quietly rising tide of devotion, loyalty and compassion which brings the argosies of man safely to harbor."

Rabbi Liebman points the moral that it is essential that theology don the more tolerant robes of psychiatric wisdom if it is to be a true minister to our civilization and its discontents. All of us, I think, must fortify ourselves with a little of this psychiatric insight in doing our most important job of all—that of getting along with people.

One of the great figures of history has said this:

"People generally attribute to other people the same kind of motives they experience themselves. We are all of us inclined to believe that other people are actuated by the same motives that actuate us. The people who think the whole world is bad generally are bad at heart themselves. The pure, good honest heart ever is ready to believe that other people are actuated by right motives.

"Even though we may not understand the motives of others, it is always best to think right motives and think no evil, for evil thought harms us as well as those of whom we think it."

Those words were spoken by Alexander Graham Bell. And Mr. Bell, knowing that "he who loves his brother best is nearer God than all the rest," imparted the comfort—the inexpressible comfort—of

—feeling safe with a person.
Having neither to weigh thoughts,
Nor measure words—but pouring them
All right out—just as they are—
Chaff and grain together—
Certain that a faithful hand will
Take and sift them—
Keep what is worth keeping—
And, with a breath of kindness,
Blow the rest away.

If we can attain this power of imparting comfort to others, we will have come a long way, I think, in the performance of our most important job of all—getting along with people.

V V

Robs Western Union Office by Writing Demand on Telegram

Police in Los Angeles, Calif., had a new wrinkle in robbery recently—hold-up by telegram.

A man went into a Western Union office in the city and handed a pencilled telegram to the clerk which read:

"Give me the money in the drawer and don't do anything foolish or I will be forced to use this gun."

Midway in counting the words the startled clerk caught their import and looked up at the writer. He patted his coat, suggesting the presence of a gun. She handed him $94.

New Minimum Wage Bill

(Continued from page 42)

As a result of these hearings, the House Labor Committee became very much divided over the various provisions in the bill and no report was made for several weeks. The first bill reported by the committee retained our 500-station exemption and removed the escalator clauses, which could have increased the hourly rate of pay to $1.00 and fixed a minimum rate at 75 cents per hour. Later a subsequent bill was reported, which increased our exemption to 750 stations.

In the meantime, a sub-committee of the Senate Labor Committee, headed by Senator Pepper of Florida, commenced hearing on a bill introduced by Senator Thomas of Utah, chairman of the Senate Labor Committee. This bill, as originally introduced, was identical in form to the bill introduced by Chairman Lesinski in the House. Our association appeared at these hearings and the writer testified before the Senate Labor Committee in April, 1949. Again we received a most courteous hearing from the sub-committee and questions asked by members of the committee indicated that they understood the need for an exemption in our industry, and that the only question was as to what size the exemption should be.

In the meantime there was a wide difference in opinion in the House over just what the legislation should contain, so that the matter was not brought to the house floor for debate until early in August. When debate on the bill began, Congressman Lucas of Texas introduced an amendment which was a complete substitute for the house committee bill. As originally introduced, this amendment contained a 750-station exemption, fixed the minimum hourly rate at 65 cents per hour, and tied the rate to the cost of living. Almost immediately, the Lucas amendment was substituted for the Lesinski Bill. Immediately thereafter an amendment was offered, and adopted, that raised the minimum hourly rate from 65 cents to 75 cents per hour, and struck out the cost of living provision.

Shortly thereafter, Helen Douglas, congresswoman from California, moved to reduce our exemption from 750 stations to 500 stations. She spoke most effectively in behalf of the amendment by arguing that only women were affected and that the effect of increasing

He finds trouble by ear

As this cableman runs his pickup coil along the cable, his ear tells him when he has hit the *exact spot* where unseen trouble is interfering with somebody's telephone service.

Trouble develops when water enters a cable sheath cracked perhaps by a bullet or a flying stone. With insulation damaged, currents stray from one wire to another or to the sheath. At the telephone office, electrical tests on the faulty wires tell a repairman approximately where to look for the damage.

A special "tracer" current, sent over the faulty wires, generates a magnetic field. Held against the sheath, an exploring coil picks up the distinctive tracer signal and sends it through an amplifier on the man's belt to headphones. A change in signal strength along the cable tells the exact location of the "fault."

Compact, light, simple to use, this test set makes it easier for repairmen to keep your line in order. It is another example of how Bell Laboratories research helps make Bell Telephone service the most dependable in the world.

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the exemption to 750 stations would be "to uncover 10,000 women." It was suggested that Mrs. Douglas did not quite realize the import of her words, but it is the considered opinion of our committee that the language used was deliberate. The result was to produce a gale of laughter from the members of Congress, followed by a motion to adopt her amendment, and, under the circumstances, it carried without difficulty, reducing our proposed exemption of 750 stations to the original figure of 500.

The fixing of a rate as high 75 cents per hour was, of course, a great disappointment to our committee, and a surprise, I believe, to every one in Washington, including the officials of the labor department and labor union leaders as well. It had generally been thought that 65 cents per hour would be the rate approved. However, the higher rate was fixed by a peculiar combination of southern Democrats and Republican representatives from eastern industrial centers. The Lucas amendment, as adopted, removed almost a million workers who are now presently covered from the coverage of the act. Almost all of them were in the south. These northern sectors had been losing industry to the south because of the lower wages in the south. In consideration of uncovering one million workers from the provisions of the act in the south, southern congressmen went along with the northern congressmen who desired to have a higher rate set in the hope it would stop the migration of industry from the north to to the south.

Ordinarily, members of Congress from the south, and those from the midwest, would have voted together for a lower rate, but because of the matters above described, which resulted in the trade I have referred to, the combination of southern and midwestern congressmen did not vote together, with the consequent higher rate of 75 cents per hour.

The senate adopted a different version of the bill late in August, which retains most of the exemptions in the present law, fixes the hourly rate at 75 cents per hour, and establishes an exemption of exchanges having less than 750 stations in our industry. Further differences in the bill are that the house bill would go into effect in 60 days, the senate bill 120 days, after adoption. The senate bill would also leave the administrator an independent agency, although in the labor department.

Conference committees have been appointed to iron out these differences, but at the time of writing this report no agreement on the measure has been reached. Of course, only matters differing in the two bills may be changed so that we are confronted with the 75 cent hourly rate. It is hoped that the senate version, which fixes the effective date at 120 days, will be adopted rather than the house bill. Certainly, 120 days is all too short to enable telephone companies to prove in a case for the increased rates that will undoubtedly be needed to take care of the additional costs provided by the higher minimum rate.

To summarize the present status of the legislation, we are certain to have the 75-cent per hour minimum wage. The exemption may be either 500, 750, or any figure in between. The effective date may be 60 days or 120 days, or any figure between. The Statute of Limitations will be extended to four years. This is the status as of Oct. 1.

As Mr. Bailey has told you in his report, it is our plan to file a petition with the administrator, providing for a longer learner period, simplifying the regulations for securing learners' permits, and increasing the number of learners that may be employed. This petition will be presented to the administrator immediately after the law goes into effect. We hope for a speedy hearing and trust we will receive some relief at the hands of the administrator.

Mr. Lane and myself have made six trips to Washington since the middle of January of this year, and have spent more than a month in Washington besides the time spent at home in connection with this legislation. Clyde Bailey has been untiring in his efforts, and we have received fine cooperation from many members of our industry, so many that it is impossible to mention them all by name.

We are, of course, most unhappy at the high rate that was fixed by the law. We feel it is not realistic, in view of varying conditions throughout the country, that it will prove to be highly depressive and may possibly result in wide scale unemployment, and contribute to a depression in this country. We are, of course, happy to have preserved an exemption for our industry, without which thousands of small telephone companies would be unable to operate. We are very proud of the fantastic expansion that has been made in our industry since the end of the war, and feel sure it compares most favorably with the expansion of any other industry.

We have the finest communication system in the world, and if given an opportunity we will continue to expand and grow and to improve that system.

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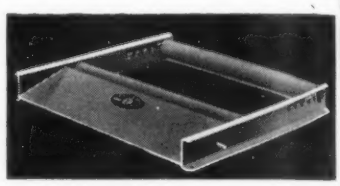

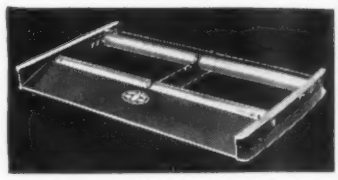

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reduces the annoyance of high resistance connections, facilitates testing, and reduces maintenance costs.

A great improvement in the method of connecting subscriber drops to open wire. "Testerm" is mounted on the cross-arm and provides a dry spot connection, thus insuring improved transmission.

Tie wires are attached to the open line wires with a split sleeve and are terminated on two 12-24 studs that are set in a glazed, low moisture absorption, porcelain block.

Drop wires are attached to the same studs. This permits testing without opening a taped connector.

The one-piece drawn metal hood is Monel. The terminal is weather-proof and all metal parts are rust-proofed.

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The patented EVERSTICK Nut Housing locks anchor firmly on rod, making installation simple under all conditions and permitting easy recovery of the rod. Note well-designed, heavily constructed sections of metal in base plate.

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Three-Way EVERSTICK with expanding plates—contacts solid earth at every point around base plate, giving full benefit of earth's holding power.

Spreader Arms extra heavy ribbed with ball and socket joint at top and clinched socket on expanding plates allow heavy bearings to move freely with minimum friction, insuring easy expansion which eliminates buckling or breaking of arms.

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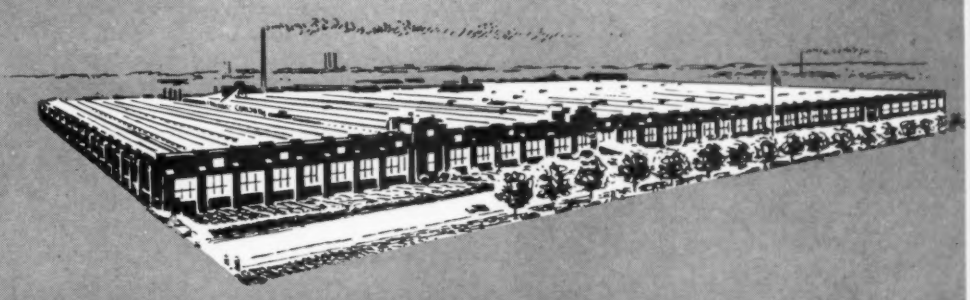

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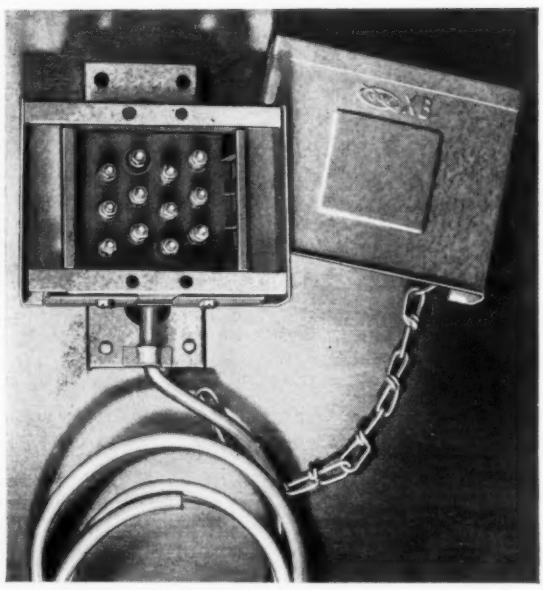

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Duties of State Commissions

(Continued from page 46)

pleted its first cycle and we are now entering another cycle. In the first, the people were satisfied with the magneto type, "whoop and holler" telephone and the service that went with it. Now we have become a roving people and we go where we can secure the best telephone service. The people are in the new cycle and the commissioners remain in the old. It is the duty of telephone companies to educate the commission and its staff about costs and the people's demand for this new type of service. It would be a good program for the parent telephone association to disseminate information to the state associations, showing what telephone service costs in this first cycle as compared to the cost of the new cycle which is the atomic dynamic cycle. Then the state association secretaries could meet with the commission and its staff and bring to their attention by means of pictures and graphic charts the cost price of the two cycles.

The commission should consider the need, not only for increased rates, but for an immediate order increasing rates, even temporarily. Reasonable earnings are necessary in telephone companies to keep up the plant and to attract new capital and new executives.

Many commissions have failed to recognize the needs of telephone companies for an inmmediate increase. Often the hearing of an application for an increase in telephone rates is set at a long period of time in advance, and tedious and unnecessary preparation is required in order to show that which the commission already knows.

Many rate applications have been filed before the commissions in the states where regulatory bodies control the fixing of their rates. A large number of the more progressive state commissions have granted temporary or emergency increases in rates in order that telephone companies may be placed in a position to pay required higher wages as well as to meet the increased prices for materials and supplies and to make some return on the fair value of their property. In some instances, the regulatory process has been grinding slowly with the result that most telephone companies have been left without proper rates and finances.

Most commissions in hearing a rate case demand the same kind of evidence and proof for a small telephone company as they do for a large one. However, some do not demand it in the same degree and detail.

Allowance must be made because small companies cannot prepare elaborate exhibits or furnish accurate plant investment figures.

Commissions must help the small companies in all their detail and the regulatory bodies of this country should regulate their own procedures to assist many small companies and adjust their rate making to a fair business standard and basis.

As a usual thing, the regulatory commissions have only a few large cases, while they may have hundreds of small ones. For a long period of years rates of small companies have been quite generally lower than those of larger companies. This has resulted in small companies' consuming any extra capital, deferring necessary maintenance, and, therefore, accumulating no surplus.

Commissions must be more practical than scientific. The right to regulate public utilities under the police power of the state does not go beyond the right to regulate it as to rates and charges and to prevent discrimination.

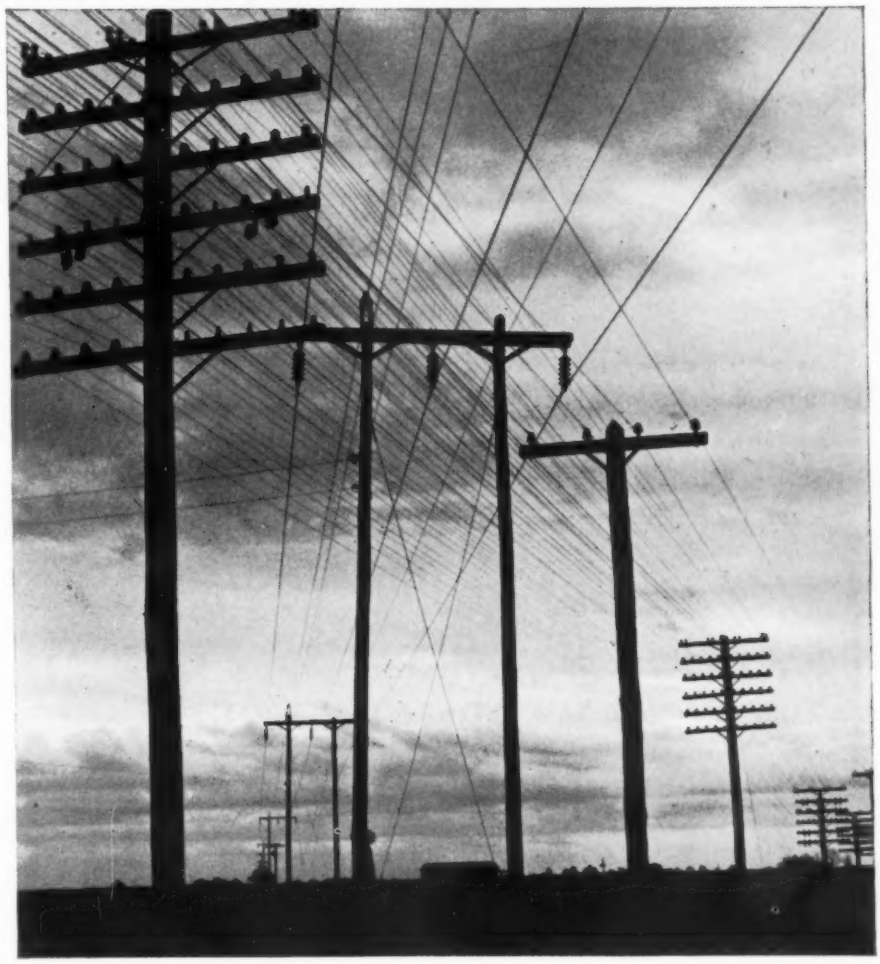
These regulatory commissions could develop some flexible orders to assist exchanges to get in position to render the service and fill the hold orders. Let the egg come before the hen. Grant the increase and give the exchange an opportunity to improve the service. Some court decisions have been made on the theory that it is necessary to finance expansions and correct poor service through immediate increased rates.

Get a rate that is sufficient to attract capital for necessary additional services. Unless these commissions take an up-to-date attitude in granting rate relief immediately to those companies requesting it, either competition in the form of government ownership is certain or the Independent telephone industry is doomed to failure.

All states have a number of small companies that need a financial shot in the arm. They have no credit resources or places where they could obtain loans with reasonable rate of interest. One commission has arranged with local banks to make loans at reasonable rates to small companies to make necessary improvements. This would be a good project for the state commission in my state, working with the Oklahoma Telephone Association secretary, H. W. Hubenthal.

Some states give the regulatory commission statutory authority to grant a temporary rate where emergency is

Let the storm come!



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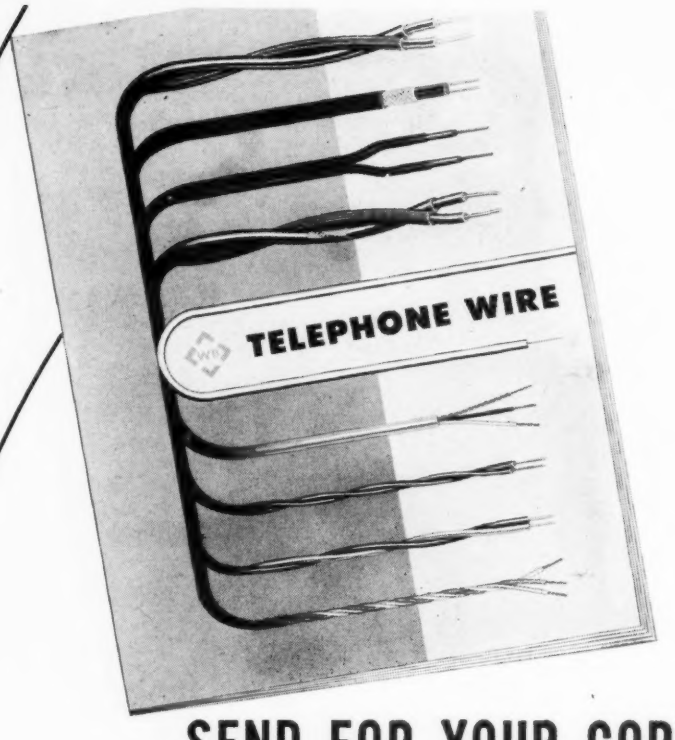

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shown to exist or the basic evidence shows that the company is not making an adequate return.

After granting a temporary rate increase, the commission retains jurisdiction of the case and at the end of the time given in the temporary rate order, the company can apply for a higher rate, or an order making the temporary rates permanent.

Regulatory commissions are confronted with ever-increasing applications for rate increases. They could save money, time and effort for themselves and the telephone company by establishing a rate base in their state, either by order or by a proper bill passed in the state legislature. What is the rate base theory used by your commission? Is it reproduction cost new or prudent investment, or present value?

In the past few years, some regulatory bodies have deliberated on rate applications for months, while operating and maintenance costs have increased. When granted, the increase had been so long delayed that the injury caused by the delay was long in healing. The transfusion was almost too late.

Some commissions have denied emergency and interim rate increases because present confiscation was not shown, and, therefore, immediate relief did not appear necessary.

Regulations must be elastic to meet the ever-changing economic conditions. What we need is not more regulation or more commissioners, but more commission for our services. However, the commissions are powerless to give us substantial help unless we ask for it. We are discouraged with the present rates, but it is the fellow who applies to the commission and who fights one more round who wins.

We believe it is the duty of the state association secretaries to meet with the regulatory commission of their state and request the commission to adopt an abbreviated form of procedure for the filing, hearing, trial and granting of rate increases. Also to get the commission educated as to the present cycle the telephone companies are in, the cost rate and service cycle. However, no commission can help us in granting adequate rates unless we put the procedure in motion by filing the case. We should ask and receive, seek and find, knock and the door will be opened to us.

Regulatory commissions in this dynamic age, owe it to the subscribers whom they represent and the exchanges they control to:

(1) Make forward and drastic changes and short cuts in their rate making procedures, and,

(2) Make immediate rate increases

in those cases pending, and follow the policy of granting immediate temporary rate increases when the application is filed.

A rate increase delayed is a rate increase temporarily denied. The commission should hear wisely, decide impartially and grant or deny the order immediately.

As suggested, state secretaries should confer with their commissioners on new and short cut methods of procedure and hearings on rate applications and establish a procedure for granting temporary rate increases. Upon the filing of an application in a rate case, the commission auditor, engineer and attorney should check the current reports on file by the applicant company, and, within 48 hours after filing, request the commission to enter its temporary order granting the rate increase. Then the temporary rate should be made permanent after 30 days, unless protested. If protested a hearing should be held within 60 days. Unless the temporary order is granted the company is compelled to operate and provide service when it is not making the actual costs.

The commission should, by order, establish a minimum rate to be charged in that state. This could be done by making a rate for each of the three types of service and based upon the size of the exchange, the population served and the class of service rendered.

This order should establish a minimum telephone rate to be charged by all telephone companies doing business in that state. If such an order was made in the various states, it would increase the rates of more than two-thirds of the 4,700 little exchanges with less than 250 subscribers. Such an order for minimum rates would be "dynamic rate-making." But this is a dynamic age and the people demand such actions. Such orders would immediately protect the small exchange which is now bearing the greatest burden, as its only revenue is obtained from rates. It has no other income.

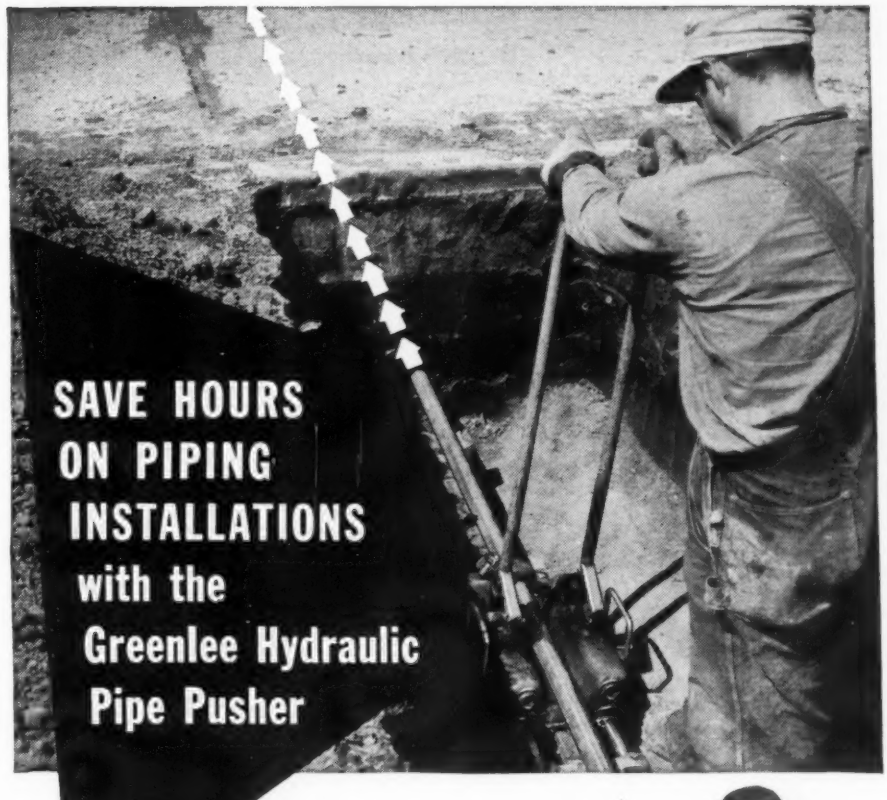
In making this order the commissions should consider the following:

(1) Pay the investors a reasonable return upon the present fair value of the exchange.

(2) Pay the exchange operator a reasonable amount of the reproduction cost new for depreciation.

(3) Give the exchange a sufficient rate to make it possible to improve the service, convert the exchange and remove all "held orders" from the "hook."

Such action would give the public the service and telephones it demands



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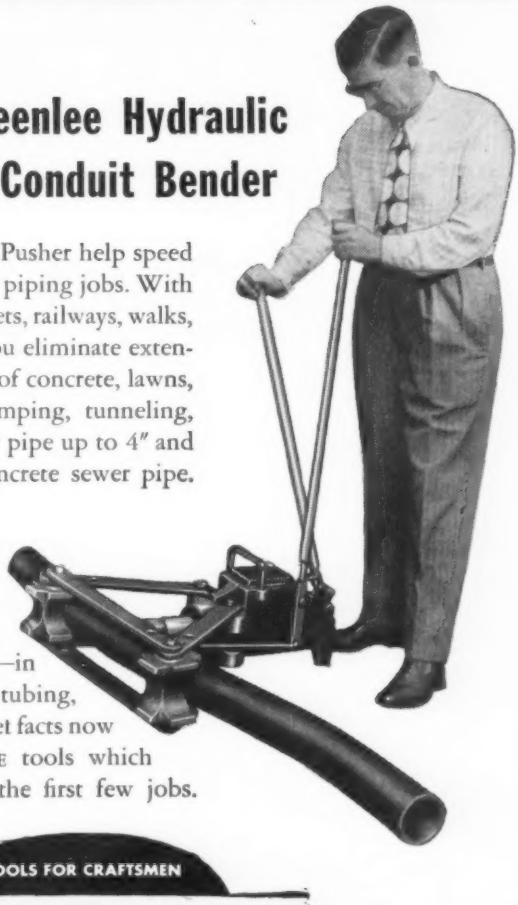

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IF you want a tape with a grip you can trust—try Gold Seal. Hot or cold, rain or shine, it sticks to the job—speeds the work. Laboratory control assures lasting "tack" in the friction compound. And Gold Seal will not dry out, peel, ravel or smear the hands. Next time try Gold Seal—in single rolls or handy 10-roll containers—each roll cellophane wrapped. Jenkins Bros. (Rubber Div.), 80 White St., New York 13, N. Y.

JENKINS *Gold Seal Tapes*
FRICTION...RUBBER

and would satisfy both the public and the owner. This is the primary duty of the regulatory commissions, and would be a step in the right direction. If the exchange operator desires additional rates, he could file his application and be heard at once.

Some advance thinkers have suggested that rates be based upon the use of cost as a rate base, giving effect to the change in the value of the dollar, even to fixing costs by use of the consumer's price index.

The commissioners should, in their rate-making orders, follow the telephone industry in the second cycle of its development; the expansion service and rate cycle. They should be educated to present costs.

Commissions this year will determine whether the days of the small companies are numbered. If the commissions refuse to use discrimination and make some dynamic changes in their procedures and rate hearings and grant many more temporary rate increases, and if they continue to bracket small companies with the large ones, then the purposes of the commissions in this age and time are defeated. Rate-making procedures and policies for large companies cannot be made to apply to small companies. Public demand for telephones can only be met when the telephones and services are available. Unless they direct their rate making powers to the need *today and now* they will be charged with the responsibility for the failure of Independent companies to give the public the immediate service it demands and for which it is willing to pay.

We need *Dynamic Rate-making* in this *Atomic age.*

Meeting the Finance Problems

(Continued from page 48)

willing to enter into a joint loan. The result was, that we worked out a joint loan with the two local banks and with another bank located in our county seat town. The loan was for a 10-year term, and with an interest rate of not 6 per cent or 5 per cent or even 4 per cent, but 3½ per cent. Our only expense in obtaining the loan was for services rendered by the local attorney in drawing the note, investigating titles and his opinion which was required by the banking department, a total of a little over $200.

A small company in need of capital for improvements would do well to consult with the local bank as it is perhaps one of the best places to obtain money if the amount is not too large and the amortization period is fairly short, and if they make you a loan you can be assured that the officers, directors, and stockholders of that bank are going to be boosters and will help you all they can, and the only report you will need to furnish them will be a copy of your annual income statement and balance sheet. Compare this with obtaining a loan from a government agency, the endless red tape, together with the restrictions on running your business and you will readily see the advantages of dealing with a local financial institution if it is at all possible. Another small company in northeastern Iowa recently obtained $50,000 for improvements from a local bank on very favorable terms.

Loans obtained through the investment departments of life insurance companies offer another source of finance which has been used extensively and successfully by the telephone industry through the years. Such loans may be obtained for improvements on very favorable terms and with a longer amortization period than is possible with a local bank, due to certain regulations under which they operate.

To approve such loans, any financial institution must find: That the money is required, that the property value supports the loan, and that the company's business is such that there is a reasonable expectation that the loan can be paid according to its terms.

In dealing with a financial institution every phase of past operations of the telephone company is of utmost importance, and not the least is the relationship of your company to the community which it serves. I believe it is of utmost importance to keep our subscribers informed as to what we are doing and why, and have found that a consistent advertising program carried on through the local weekly newspaper is the nucleus of any public relations program. We find excellent material available through the *Telephone Advertising Institute*, which provides us with newspaper mats, posters, booth cards, bill enclosures and truck posters, all of which are most timely and attractive. Using this service as a basis, we built around it in many ways. We have made up our own copy for movie trailers, we have given away advertising pencils, pocket calendars, and each year provided the community with small billfold size football schedules. Each year I attend the 4-H Club calf sales at the county fair and always purchase a baby beef at a premium price from some boy or

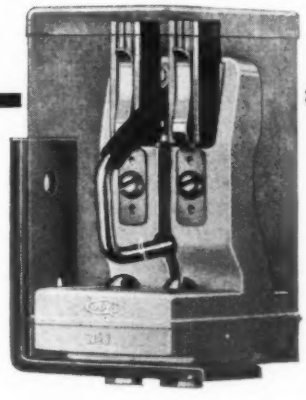
A LEADER IN SERVICE AND SATISFACTION

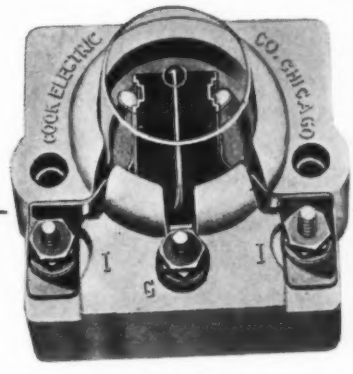
SETTLE ON SUTTLE AND GET THE BEST

SUTTLE STOCKS COOK PROTECTIVE TELEPHONE EQUIPMENT FOR IMMEDIATE SHIPMENT

Cook No. 1

Lightning Arrester For Outdoor Use



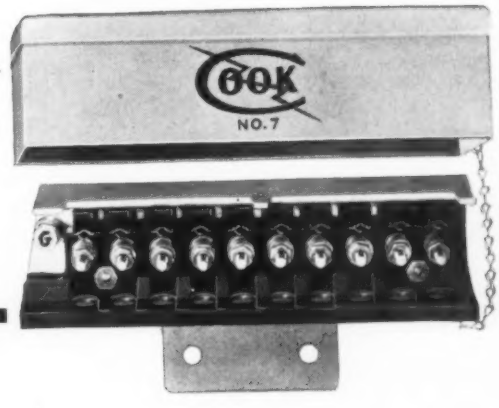


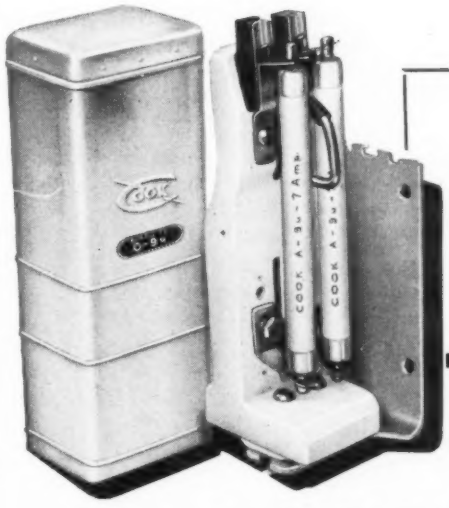
Cook No. 2

Lightning Arrester For Indoor Use

Cook No. 7

Aerial Wire Arrester For Pole Line





Cook Type 0-9u

Sub-Station Protector Contains arresters and A-9u Lavite fuses for Protection against lightning and power crosses.

SUTTLE
EQUIPMENT COMPANY

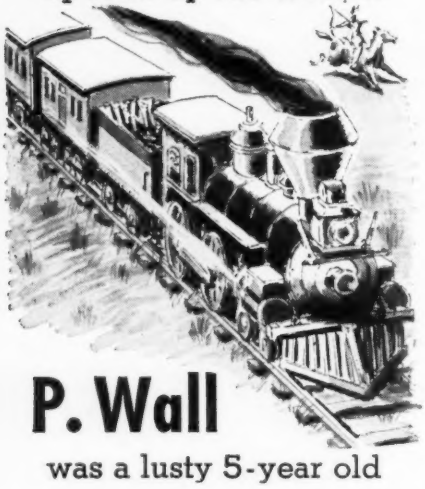
Supplies and Equipment for Independent Telephone Companies

LAWRENCEVILLE, ILLINOIS

When the

"IRON HORSE"

opened up the West...



P. Wall

was a lusty 5-year old

1864 was a magical year in American history. The Civil War had come to a close, and the United States stood on the threshold of a tremendous era of industrial and economic expansion. As an example, the first transcontinental railroad was linked up in 1869, and the epic development of the West began.

Since 1864, P. Wall has been manufacturing a line of soldering products which are unsurpassed for quality and serviceability. We are proud to have contributed to the astonishing growth which has made America a symbol of strength and progress throughout the world.

Typical of P. Wall's complete line are the following products.

"DREADNAUGHT"
Torch No. 41

This gasoline blow torch features a drawn steel tank with all inlets brazed and bottom electrically seam welded to tank shell. Blow-proof pump, durable double coat brass gloss finish. Highly polished brass tank available. Attractively priced.

The "BIG BRUTE" splicer's furnace

Wide base and low center of gravity for absolute stability. Pump has blow-proof construction and positive check valve. Flue is equipped with doors or may be tilted out of way. Wall "Superior" Safety Shield protects furnace from wind and prevents accidents.

Send for **NEW** Catalog

Our new catalog, printed in August, describes our complete line—including the Harmic Division products. Write for free copy—no obligation.

Since WALL 1864
SUPERIOR PRODUCTS
SINCE 1864

P. Wall Mfg. Co.

213 Erie Street, Grove City, Pa.

Your Most Complete Line of Soldering Products

girl living along our rural lines, and for several years we have sponsored one of the four softball teams in our community.

We believe that sometimes telephone companies must try new methods of promoting goodwill and making the public more "telephone company minded." That is what we had in mind when we arranged a recreation room in the basement of our new building at Riceville. We had realized for some time that there was a definite need in the community for a room in which various groups and organizations could hold meetings, thus the entire basement was planned for this use with a separate entrance so employes would not be disturbed while on duty. It is well lighted and comfortably heated, has a modern rest room and is well equipped, with a kitchen sink built into a bar with a gas plate, has hot and cold water, ventilating fan, coat and hat rack, fifty chairs, and several large tables. This room is available to any group or organization without charge and a total of over 40 organizations availed themselves of this service during 1948, including, Boy Scouts, Girl Scouts, American Legion, Legion Auxiliary, Farm Bureau, Triple A, 4-H Clubs, Conservation Club, W.C.T.U., Baseball Club, Athletic Association, Amvets, and Sunday School classes, with a total of over 150 meetings during the past year. Many families with small homes use it for card parties, dinners and family reunions, including one Thanksgiving dinner, and last but not least, this room has been the scene of 18 showers for brides, and on one occasion a wedding breakfast and once a month you are able to obtain your driver's license there. I believe this room has been used for every purpose imaginable except weddings or funerals. This is known as the Riceville Rumpus Room and has long since become an institution in the community.

Two years ago in October we planned and sponsored a Corn Show and offered $50 in prizes for various classes of corn. The women were not forgotten as we also offered prizes for the best quart of cucumber pickles. The FFA boys decorated the Rumpus Room in keeping with the season, and what began as a little corn show turned out to be a big community get-together with band concert, political speeches, magicians, a parade, and a dance sponsored by a local club for the benefit of our little community hospital. Those winning prizes for the best corn donated the money to the hospital and that evening we auctioned off the prize winning quart of pickles. They were extra good pickles because the quart brought $314, and this money was also donated to the hospital. The local hospital benefited by a total of nearly $1,000 and the Corn Show is now an annual community affair.

We must be up-to-date on ways and means to reach the public. We must watch other industries and adopt methods which they have found to be effective in selling service and in maintaining public relations.

We have tried to be alert to both direct and indirect methods of building public relations. I believe it pays for we have increased our rates for service many times in the past seven years until they are now double the 1940 rates, and at no time have we had an actual complaint.

The following is a practical example of the confidence that can be built up in the minds of subscribers with a consistent public relations program and improved service: In June, 1947 we moved into our new Riceville office and converted the town to common battery service. Figures showed that the rate increase necessary would be 75 cents on residence service and $1.00 on business. In the last minute rush the July bills went into the mail without any such notice of the increase. The bills were all paid promptly and just one subscriber mentioned the increase by remarking when he paid his bill that he noticed that it was a little higher.

Oftentimes I think we fail to see the opportunities that present themselves in our own community. In all areas of our nation the income per capita is consistently higher, and statistics show that more money is invested in savings accounts and low interest bearing government bonds than ever before in history. Many people are searching for a more lucrative return on capital accumulated during these recent years of inflated wages and high farm income. Could a company in need of capital find greener fields and what could be a greater asset to a business than good interest bearing stock sold to its own customers?

One of the projects of the Small Company Committee in Iowa is a good example of how this type of financing can be made to work. Many of you have heard or have read in the trade journals about some of the activities of what is known as the Small Company Committee in Iowa, appointed to be of service to small companies which were in need of advice and assistance with their various problems. I have served as chairman of this committee during the past year and we have helped and advised many small companies.

One of the highlights of the work done by the committee was the assistance we gave in forming an entirely new company in a rural area north of

POLES BY WATER, TRUCK AND RAIL

- A steady stream of the finest Western Red Cedar, Northern White Cedar, and Western Pine Poles flow toward Mac Gillis and Gibbs Company Plants at

Minneapolis, Minn.
Gladstone, Mich.
White Sulphur Springs, Mont.

Butt or Full Length Creosote Treated

Recently Equipped to Treat with Pentachlorphenol

SECURE PRICES FROM
One of the Oldest Names in the Pole Industry

THE MAC GILLIS AND GIBBS COMPANY
1615 E. ROYALL PLACE MILWAUKEE 2, WISCONSIN
Also from Kellogg Switchboard & Supply Company, Chicago, Illinois

PEATROPHONE

"The Mechanical Secretary"

Answers the telephone in the subscriber's absence and records incoming messages the calling parties wish to leave.

The only instrument which makes its own talk-out message and is complete in itself and requires no microphones, loud-speakers or connector boxes.

Complies with all F.C.C. requirements.

Consumes less current than a radio set and uses flat disc records which cost less than ¼ cent per message.

We furnish Peatrophones only to telephone operating companies for lease by them to their subscribers and do not sell Peatrophones direct to the public.

We believe the telephone operating companies should control everything connected to their lines in any way.

8" high, 10" wide, 14" long

Peatrophones require no change whatever in existing equipment or operating procedure.

Peatrophones increase your revenue and result in better service to your subscribers.

Peatrophones are fully covered by a number of issued patents and pending applications.

WRITE TODAY FOR INFORMATION ABOUT OUR LEASING PLANS!

TELEPHONE ANSWERING AND RECORDING CORPORATION
342 MADISON AVENUE Telo: Murray Hill 2-5166 NEW YORK 17, N. Y.

IMPROVE YOUR CABLE SPLICING

with

HANDI-HEAT

A Bottled Gas Firepot Designed for The Telephone Industry!

IF YOU WANT TO SAVE TIME AND MONEY, USE OUR BOTTLED GAS FIREPOT!

Its instant lighting produces instant heat

No more pumping, priming or pre-heating

No clogged burners

No more bad weather worries

Write today for prices and descriptive literature

to

MET SALES AND MANUFACTURING CO.

1217 NORTH MAIN STREET

ROCKFORD, ILLINOIS

Maquoketa, Iowa. This territory had no service whatever during the past 14 years. On the night of Sept. 9, 1948 at a mass meeting in the basement of a country church a new corporation was formed known as the Emeline-Iron Hill Telephone Co., Inc. Residents had a scrap of paper and a desire for service.

Under the guidance of the Small Company Committee stock was sold, the plant was engineered, orders placed and during the winter the lines were built and a building constructed to house the dial board. New dial handsets were installed and in just six months time this little community was enjoying the finest telephone service in the world. This is one of the poorest areas in Iowa and in a territory that required nearly as many anchors as poles. This project to serve less than 150 farms cost $38,000. These farmers purchased the bulk of $30,000 worth of stock themselves. Here is a group of people who are in an area where the land is worth right around one-third the average value of land in the middle west and who have raised approximately $250 of new capital per subscriber among themselves in order to provide themselves with good up-to-date telephone service, and, they are going to charge themselves $3.00 per month for rural party line service. It should be added, too, that throughout their discussion of rates, they felt that $3.00 should be the minimum and after a year or two it could go higher if necessary; no mention was made of reducing rates.

It was optional with them whether they would provide free service to Maquoketa, the county seat and trading center 10 miles away, or make a toll charge. They decided on a toll charge, for, even though they are not experienced telephone people, they realize that there is no such thing as "free service."

Here is a true example of the pioneer spirit which does still exist in America and in our telephone industry. It is an example of free enterprise. Here in the United States with only one-fifteenth of the world's population and about the same proportion of the world's land area and natural resources, we have over one-half of the world's telephones. This has come about under a free enterprise system for which blood has been shed and wars fought to preserve. This marvelous service, which is still an infant in the history of the world is provided in America by tax-paying businesses that have never asked for government aid and are not asking for it now.

There are those who would like to destroy this system and have the state take over. The destruction of this fine system could well be an opening wedge leading to socialism or a more dictatorial form of government. For those who are not satisfied with our great American free enterprise system there are other countries that can oblige them with all the regimentation they might desire. We only ask that we be allowed to operate our business at a fair profit, and some of the red tape, regimentation and reports be dispensed with and the yoke of heavy taxes be lightened. We shall then march forward and our telephone system in America will continue to be the envy of all the nations of the world.

Brush Control By Spraying

(Continued from page 56)

be of interest to this group that it is possible only to outline them hastily in a brief paper. Costs at least must be mentioned, although making a definite statement about how much it costs to kill brush is about like saying how much it cost to build a house. You all know, of course, exactly how much it costs to build a house. In the case of spraying woody growth a large number of variable factors also enters into the cost. Among these are the following:

How high is the brush?

How dense is it?

What species of trees are present?

How wide is the right-of-way?

Is the right-of-way along the road or across country?

If across country, can the right-of-way be traveled by truck or will hose dragging be necessary?

If hose dragging is required, how much hose must be used at a time? (We have sprayed power lines where 2,000 ft. of hose was necessary to reach the brush from the last entry to the line).

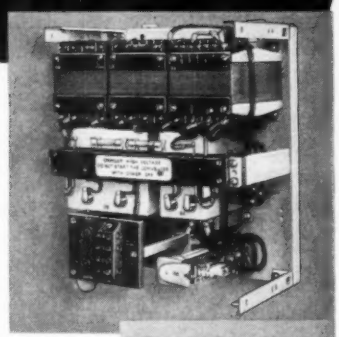
If solid stands of low-growing brush such as gray dogwood or buck brush are encountered are they to be sprayed or do you want to concentrate only on those species which will actually reach the overhead wires? (Some utilities want low-growing brush sprayed, others do not).

Do you want the most thorough job possible, that is do you want the brush killed or do you just want it controlled? (The second will spread your budget over a somewhat larger number of miles but may be no cheaper in the long run.)

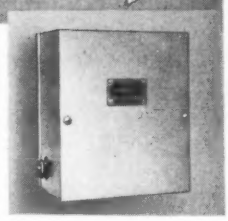
Are you asking about the cost of spraying five-tenths of a mile of line or 500 miles where there is a chance to organize a job for maximum efficiency

How far is it to the water supply? and minimum costs?

Take Ringing Current from Mains Supplies by SYNCYCLE



Type 5B2
Output: 75v: 5W: 20c/s
Input: 90/260v: 40vA: 60c/s
Height: 10⅜ ins. | Complete
Width: 8¾ ins. | Weight:
Depth: 5⅜ ins. | 23 lbs.

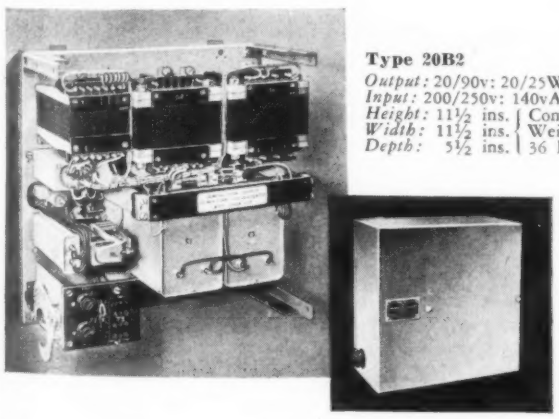


RINGING current at 20c/s for Telephone Exchanges can be efficiently provided from A.C. Mains Supplies by the SYNCYCLE Frequency Converter. It is also particularly suitable as a source of low frequency current for signalling and alarm systems, laboratory use, etc.

The SYNCYCLE is compact, noiseless, interference-free and easily installed. It is automatically protected against overloads and has no moving parts, thermionic valves, electrolytic capacitors or other components liable to require replacement.

Models with nominal output ratings of 5Watt at 75Volts, and 20/25Watts at 90Volts are available in Standard patterns for use in Temperate climates . . . and in hermetically sealed patterns with flame-proof and water-proof cases for use in Tropical conditions.

This is one of the many specialized products developed by the Telephone Manufacturing Co. Ltd.—Telecommunication Engineers who are large contractors to British and Overseas Governments.



Type 20B2
Output: 20/90v: 20/25W: 20c/s
Input: 200/250v: 140vA: 60c/s
Height: 11½ ins. | Complete
Width: 11½ ins. | Weight:
Depth: 5½ ins. | 36 lbs.

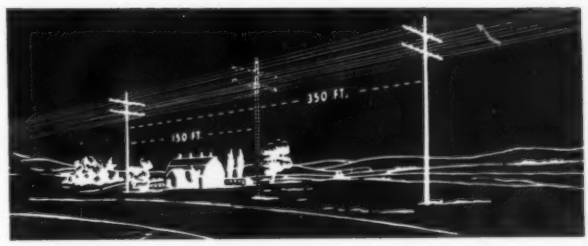
Write for Brochures F.1008 and F.1015.
The Syncycle is patented and Manufactured by

TELEPHONE MANUFACTURING Co. Ltd.
DEPT. 350/1: TRANSMISSION DIVISION
HOLLINGSWORTH WORKS: DULWICH, LONDON S.E.21
ENGLAND.

Cables • Bubastis: London

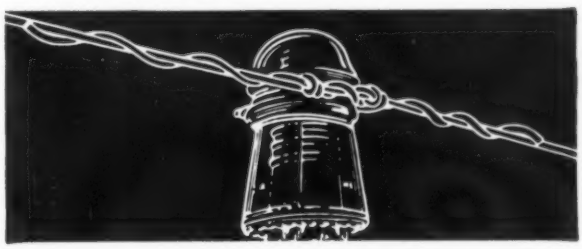
For low-cost, trouble-free telephone lines

use Amertel Wires and American Armor Rods



Amertel-135 Wires have tensile strength 2½ times that of standard BB grade wires. This extra strength permits long-span construction, often reduces pole requirements by 50%. Span lengths of 350 feet are possible in heavy loading districts, 500 feet lengths in light loading districts. This means less digging, handling, connecting . . . less costly labor. And Amertel lines *stay* up, even under extreme weather conditions. There are fewer service interruptions, less maintenance required when Amertel wires are installed.

For PLUS protection, use **U·S·S American Armor Rods** to guard against abrasion caused by vibration and swaying. They afford improved distribution of line-wire stresses at the support, and during periods of ice and wind loading they secure the line wire firmly to the insulator. The service life of telephone lines can be further extended by improved tieing methods that enable the conductor to withstand extra millions of oscillations, prevent damage from chafing, tie burns and corrosion.



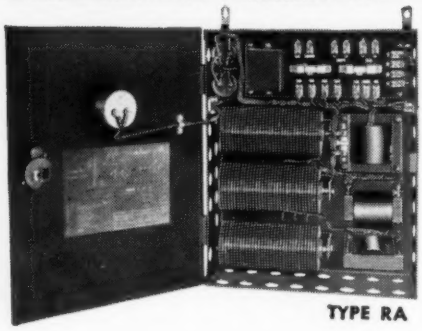
Write for complete information on these Amertel Wires and on our regular "B.B.," "E.B.B.," and "Steel" wires.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Look for this tag.
It is your assurance
of highest quality wire.

USS
AMERTEL
TELEPHONE & TELEGRAPH WIRE
UNITED STATES STEEL

Dependable
DC POWER SUPPLY
for Lamp Signal and
Automatic Switchboards
LOW IN FIRST COST!
LOW IN OPERATING COST!
ELECTROX
CONSTANT VOLTAGE
BATTERY ELIMINATORS



TYPE RA

MANUFACTURED to the exacting standards of the telephone industry, the Type RA ELECTROX Constant Voltage Battery Eliminator will deliver direct current of suitable smoothness for operating lamp signal and automatic switchboards without the use of batteries.

The Type RA ELECTROX delivers a practically constant output voltage irrespective of current drain up to the maximum output of the rectifier. Constant voltage output is obtained automatically — requires no manual adjustments.

Housed in a ventilated steel wall mount cabinet, the Type RA ELECTROX eliminator requires no attention or maintenance. Simply plug it into your AC power supply and forget it. Available in numerous capacities to supply required DC voltage, with or without power-off relay.

For complete information on the Type RA and other ELECTROX eliminators for the telephone industry, write for Bulletin 1462, or see your Jobber.

RECTIFIER DIVISION
The SCHAUER
MANUFACTURING CORP.
2057 Reading Road, Cincinnati 2, Ohio

Will it be necessary to secure permits?

If permits are necessary, are most of the property owners local, or absentees in which case much time might be lost in locating some of them?

I am raising these questions not to evade the issue, but to point out that it may be confusing, or even misleading, if you attempt to evaluate the possible cost of spraying your own lines on the basis of the highest or lowest costs bandied about in discussions of this subject. Based on some thousands of miles of line sprayed, it seems fair to say that, where costs of previous cuttings were known, it has cost about the same to spray roadside brush as it has cost to cut and burn, or otherwise dispose of the brush off the right-of-way. This applies to ammonium sulphamate sprays to woody growth five to 15 ft. high, designed to give about the degree of root kill of mixed species previously described. In other words, for the cost of about one hand-cutting it may be possible to kill almost all of the living growth to the ground with perhaps 80 per cent kill of the roots of all stems sprayed. Needless to say, this represents a distinct gain on the brush problem. This comparison of costs doesn't apply to cross-country power or telephone lines where rights-of-way may be relatively difficult of access to wheeled vehicles.

Public relations with this new type of service generally have been good. This streak of brown which creeps across the countryside behind a spray rig is something about which property owners, public officials and others naturally are curious and at times apprehensive. Consequently, there are some things that both the utility company and contractor can do to insure freedom from misunderstanding. Utility employes up and down the line should be informed of what is being done and what will be accomplished. Linemen and others whose work requires them to use the right-of-way welcome elimination of brush and proper spraying lessens the poison ivy hazard. One power company line superintendent wrote an article explaining his brush spraying program for the employes' bulletin.

Farmers have a brush problem too and once they are assured the chemicals are not poisonous to live stock, ask many questions about their possible use in farm brush problems. These questions should be answered as accurately as possible. We supply our men who obtain permits with a small pad of printed sheets of information containing six concise paragraphs of what we are doing, what chemical is being used and how brush elimination will help the property owners to receive good electric and telephone service. We believe leaving a trail of these sheets with the property owners along the lines where we spray has been a help in maintaining good public relations.

Brush spraying is still new enough that the local newspaper may be interested in the program. Often times the paper will publish a news story on the job. This is best handled, we believe, by the utility company where the officials are most likely to be familiar with local angles.

Garden clubs and other community improvement societies at times may become alarmed at what to their members may be a rather horrifying streak of brown throughout the countryside. They, too, need to be reassured that this browning is only temporary, that the roadside soon will be covered again with a mantle of herbaceous vegetation, and that spraying represents less frequent disturbance of vegetation cutting at intervals of one to three years. Needless to say, highway landscape engineers and other highway officials should be kept informed fully even though it may not be necessary to secure permits from them. They, too, fight brush endlessly and we have found them quite willing to cooperate. Naturally, we wouldn't ask to be allowed to spray where planting of trees have been made for scenic purposes or to hold steep banks in place.

While we can kill tall brush about as effectively as we can stems three to four feet high, there are some reasons for starting a spray program on brush which is not more than eight to 10 feet high. This is especially true beneath roadside lines. Many dead stems break over within a few months after they are killed and become relatively inconspicuous among the herbaceous plants that spring up the following season. Even so, the larger the dead stems are the longer they persist and the more liable they are to cause unfavorable comment. Then, too, even with such non-volatile chemicals as ammonium sulphamate, there is a limit to the height to which even the most careful workman can spray with safety to crops growing up to the fence line or roadside. It is hardly reasonable to direct a stream of any weed killer to the top of trees 20 to 30 ft. high in a 20-mile wind, as we are sometimes asked to do, and expect none of it to be blown on to nearby crops. Even on shorter brush and with lighter winds it may be advisable to pass up certain locations until the wind dies down or changes direction.

Conservation officials, or others interested in birds or other forms of wild life, are properly interested in the vegetation changes which occur

following brush spraying. I have discussed this with technically trained wild life managers and have shown them areas sprayed from a week to three years previously. These men seem to believe that the disturbance and injury to nesting areas are less severe following spraying than following cutting. Cutting, of course, results in sudden and complete destruction of all cover and a complete trampling of the area. It is well to point out that some of the plants which come in following spraying, such as ragweeds, clovers, false buckwheat, pokeberry and others furnish more bird food than the woody plants which are replaced. Bittersweet is not much affected by brush spraying. This is a vine which in the absence of trees on which to climb is a ground cover plant. Its berries stay on the vines until late winter and furnish a food for wild life at a time when other food may be very scarce.

One other item explains public acceptance of brush eradication along the roadsides in the community. Rural residents in the colder parts of the United States know that roadside brush frequently acts as an improperly placed snow fence. Consequently, they are not adverse to see these drift-inducing strips of woody growth killed out.

I would like to sum up the present status of brush spraying by saying that effectiveness of present day chemical and power sprayers have brought the brush problem in step with other machine age methods. A skilled workman with a spray gun in his hand can reach farther, faster and more effectively than the common laborer with only a brush axe at his command.

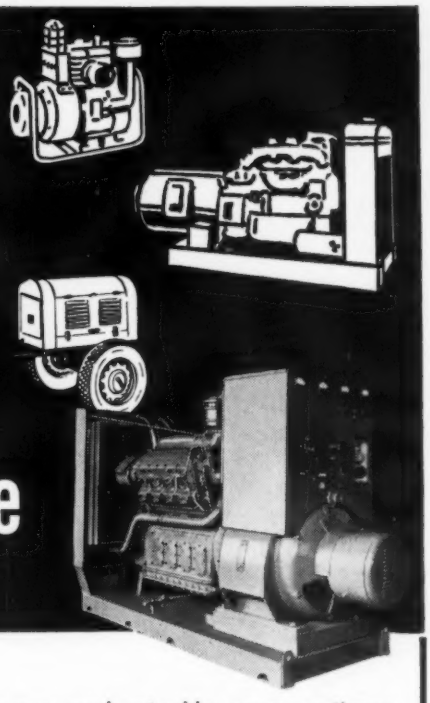
Special, Auxiliary Services

(Continued from page 59)

some booths it may be necessary to change the book every week or two. Booths should be lighted and if possible they should be ventilated. At some locations it is advisable to have the directory mounted outside the booths as by doing so it does not require booth time for the calling party to look up the number.

Private branch exchange systems of all types and sizes should be provided to meet the customer's needs. I would caution you that if you have not reviewed your PBX rates lately that you do so. Two years ago we secured substantial PBX rate increases and yet a

"U.S." Builds Electric Plants for every telephone use



Whatever your needs—stand-by power, continuous power, or portable power—there's a "U. S." unit for the job. Line includes electric plants from ½ kw to 140 kw, A.C. and D.C. These "U. S." Electric Plants are earning a reputation for dependability and economical service. Write for information.

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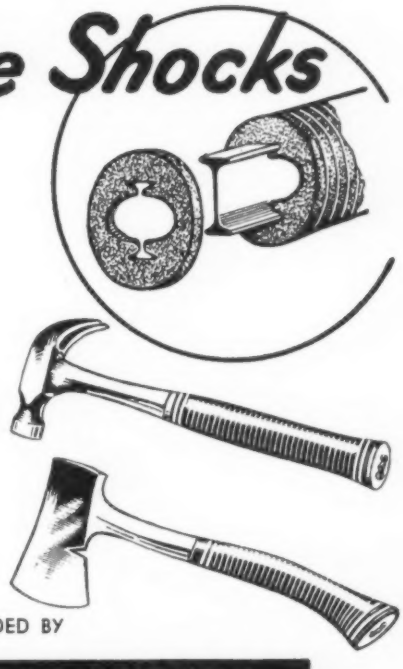

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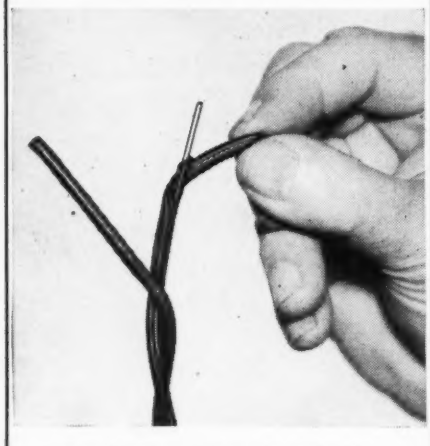

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Conductivity—The high tensile pure bronze conductor in 17 A.W.G. (B. & S.) gauge shows 80% conductivity. Assures no loss in signal clarity.

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An extra strength, "Flozinc" coated iron conductor — rubber insulation protected with cotton and mineral fiber weatherproof braid — finished with powdered mica to U.R.C. specifications. A truly fine drop wire.

Write for prices and literature

TELEPHONE DIVISION

PARAGON ELECTRIC CO.

Two Rivers Wisconsin

study we just completed shows we are losing money on the switching equipment portion of every PBX system we have in service. Including the investment and revenue from the PBX stations makes the over-all return satisfactory but no more than so. So I warn you, don't push an item that loses money.

Multiple line systems, key telephone systems and key telephone sets are very popular with us, and fill a customer's need between main station service and PBX system service. But here again I say be sure your rates are compensatory.

One of our newer special services is mobile telephone service. It's still in its infancy and I'm not including it here as a guaranteed money maker for you. I think mobile telephone service is definitely a part of the telephone communication business, and if you can afford to help pioneer the service I recommend that you do so, not from the idea of enhancing your company's revenue picture, but rather as an education and to be in on the ground floor, so to speak.

You may think I sound a little pessimistic. Well maybe I am. As you may know we were the first Independent telephone company to "go on the air." That was in August, 1946. Today, over three years later, we have 16 mobile units in service and five of them are ours. Our total billing for August, 1949 was $370.37. At one time we had 19 units in service and our monthly bill has been as high as $535.07.

I don't know what the reason is, but we can't seem to sell the service, at least not to the extent I thought we would, and even when sold we have lost several customers after a few months. It's not that our service is not good, because it is excellent. Our failure to have more units in service seems to come from, first, the lack of a real need on the part of the customer and, second, the high rental charges. We're not discouraged, we think customer acceptance will come, even if slowly.

Telephone answering, or secretarial service as we miscall it, is a subject I could spend more than my allotted time discussing. We have been furnishing this service for years, and although we recently raised our rate in Lincoln from $3.00 to $7.50 per month, we are not making any money, nor are we giving our customers the personal service they expect and deserve. This is not a special service I would recommend to you. We are making plans now to dispose of our service to a private operator. Then we will be back in the telephone business, renting a switchboard and cable pairs.

While not exactly in the category of special services, I think these phases of our business should be mentioned because of the revenue features involved. An upward revision of extension and exchange line mileage charges is a must in review of present day plant costs. While the revenue from these sources is not large, the service when furnished should bear its own costs and not operate to increase exchange rates.

Also considerable revenue can be gained by periodically checking tariff violations with respect to the operation of businesses from residence locations at residence rather than business telephone rates. Beauty shops, rooming houses, truckers, garages, radio repair shops are typical examples. Not only should these subscribers be required to pay business rates for the increased revenue involved, but also in order to be fair to those already paying business rates.

The elimination of so-called "free service" to a neighboring exchange will both reduce expenses and increase toll revenues. There is no such thing as "free service." The cost of providing the service is borne by all subscribers, and studies all show that a very small percentage of the subscribers place the vast majority of the "free" calls. The fair and equitable way is to discontinue the service, thus reducing expenses, which is even more effective than increasing revenues.

There is one item of equipment I want to mention, not because of its revenue possibilities but because I think every telephone company should provide it as a service to its customers. I am referring to amplifying equipment for use by those with impaired hearing. We find there are many subscribers who are able to enjoy the benefits of telephone service through the use of amplifying equipment. We provide three types of such equipment, namely: Sound powered receivers, two-stage key amplifiers and variable volume control units. The monthly rates range from 75 cents to $2.00. We endeavor to provide this equipment at cost as a service to our subscribers needing it.

I could continue to enumerate and discuss other special or auxiliary services but I believe I have covered the most important ones. Let's not overlook this market in our business and now when we can't stress main station sales we can reinstitute our sales program by selling these important services. But again I admonish you to be certain your rates are proper. Telephone companies cannot afford to push "cut price leaders."

• • •

It has been said: "The use of cheap or inferior materials to save money is like stopping the clock to save time."

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SURFACE ANCHORS *and* ADHESIVES

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Chase Brass & Copper Co. is an affiliate company of Kennecott Wire and Cable, with 26 sales offices (23 of them warehouses) in leading industrial centers from coast to coast.

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Pull Poles *FASTER*
—without digging

Model 329 with chain pulls any size pole.

Simplex Pole Jacks

Pole pulling, straightening or moving is fast, safe and easy with the Simplex 329. An "H" beam sub-base insures a firm foundation on any ground. Equipped with 8′ welded steel chain and 5′ steel lever bar. No digging needed, regardless of size of pole or depth in ground; operated by only one or two men. Complete specifications on this and other Simplex Utility Jacks available in Bulletin U48.

TEMPLETON, KENLY & CO.
1044 South Central Avenue
Chicago 44, Illinois

Rate Treatment Small Companies

(Concluded from page 63)

hours worked, thus substantiating this adjustment. Or, if additional help is anticipated, explain duties of the help and costs. Substantiate any adjustment concisely and clearly. Tax adjustments are self-explanatory and the local service item is described in the exhibit referring to present and proposed rates.

This sums up the formula and its explanation. The case is laid out.

Each state with a commission has particular regulations to be followed in submitting the petition, but a letter or visit to the regulatory body will bring the necessary forms with directions for filing. In some instances notification of the filing must be given the newspaper by the applicant and in others the commission may file it. Again, the commission staff will be pleased to assist with advice.

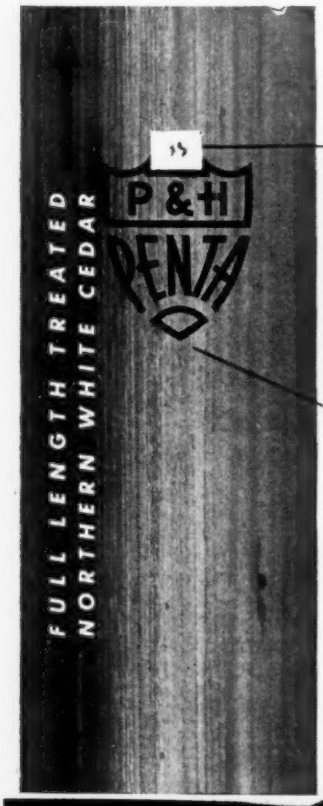
Whatever the case, it is strongly recommended that the notice to the subscribers be mailed before any articles appear in newsprint. It gives the customer a sense of confidence in his telephone company, and it gets the story to him fully, intelligently and in the operator's words. Bad publicity or poorly written news articles can be costly; those that don't say enough are as bad as those that say too much.

If the narrative is thorough and the other items neatly and intelligibly set up, the hearing should be short and, we hope, sweet.

Incidentally, the subscriber notice should not be overlooked as an exhibit, for it gives real proof that ample information concerning the appeal for new revenue has been given subscribers.

If new rates are approved, a descriptive insert accompanying the first bills issued after the order is received showing the rates authorized for various grades of service reduces the number of explanations necessary when customers come in to pay accounts.

There is no desire here to leave the impression a small telephone company rate case is a few minute job or a simple proposition. It requires time and study, but with a definite outline to follow it is possible for the operator of the property, either alone, or with a minimum of help to handle the problem.



The preservative (a highly chlorinated phenol solution) is more toxic than any others in common use.

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POLES

They are pleasing in color — neat in appearance.

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"STILL IN THE LEAD"
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Personalizing The Service

(Continued from page 66)

which is of better quality than others, any voice can be pleasing if it reflects the operator's own personality. Efforts are, therefore, directed toward enabling the operator to make the most of her own natural voice. No attempt is made to fit the voice to a fixed pattern or to change it because it differs from others, but the emphasis is rather toward developing the required qualities along lines natural to each individual.

In addition to the quality of the voice, the choice of words used is important. In speaking to customers, operators are encouraged to be natural and personal, using simple understandable language and adapting the words to the individual, as if conversing face to face. Phrases provided in the operating practice are designed to illustrate the intent of what is to be said, and so are regarded merely as guides subject to variation to meet specific situations. The objective is that the

words used be appropriate and in good taste, while stating the facts correctly. Accordingly, operators are trained to understand the principles underlying the practice rather than the specific phrases.

As mentioned earlier, the realization of friendly, personal service is not something that can be learned from a book or in a classroom, but must grow up inside of one—it is something to be lived and experienced, a way of life.

The new operator, just as the free lance writer who visited a central office, senses the atmosphere when first she enters the office. She is introduced to the spirit and essence of personalized service in her earliest contacts with her chief operator and with her instructor, and she will be exposed to its influence every day and in every contact so long as she remains in the service. Her supervisors will assist her in developing a proper understanding of what constitutes truly pleasing service, will commend her for the outstanding occasions when she has rendered such service, and will show her opportunities which she has missed.

There will be gaily colored posters on the bulletin boards and reminder cards on the switchboard positions, many of them created by the operators themselves, ingeniously illustrating by cartoon and slogan the principles of personalized service.

There will be articles in company magazines and office bulletins, group meetings, open house programs, service skits and demonstrations — all dedicated to the theme of friendly, personalized service.

There will probably be a voice recorder in the office, or one will be available occasionally, into which she can speak and then hear her own voice, and on which simulated calls illustrating good and poor personalized handling are recorded for discussion. There also will be prepared recordings, some of them probably made up locally within the office, showing the contrast between good and poor voice usage.

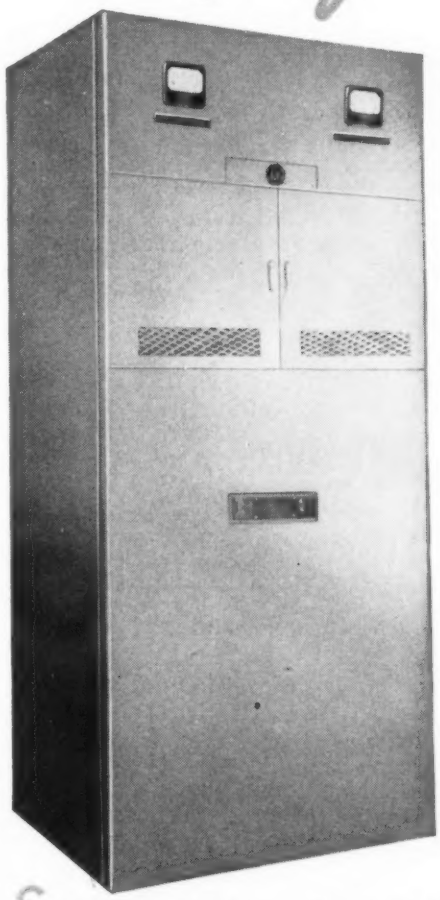
From time to time, there will be friendly contests between offices, or between groups within the office, to select operators who show outstanding performance in the field of personalized service—possibly to select the "Voice of the Week," or the "Operator of the Month," or the "Service-plus Operator."

Underlying all these activities will be a continuous, day-to-day service program participated in by the whole force, in which some aspect of personalized service generally will be featured, either by itself or in relation to a different service factor.

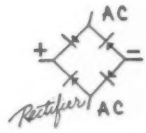
In many offices, the operator will find that management makes it a practice

Here's a Battery Charger that is

Completely Self-Contained



- **All components in one cabinet**
- **No separate units to install**
- **Cuts installation costs**



Starting contactor, voltage and current controls, transformer, filter components, rectifier, meters and protective devices—all components necessary for battery charging and control are contained in the heavy sheet metal cabinet of the PECo Battery Charger . . . Compact design eliminates the necessity of installing separate starter and control panel and the interconnection of power and control circuits . . . AC input and DC output leads may be brought in from the top, simplifying conduit installation . . . There are no moving parts . . . No fans or other ventilating equipment required . . . No special foundations necessary.

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May be Used with Harmonic or Coded Bells

Vincent Rare Gas Relay, RTC- 2. Ready for Mounting.

End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

Since the resistance of the relay is practically infinity below 60 volts, its normal breakdown voltage, the line remains normally free from paths to ground. Ringing voltage of 85 volts ionizes the rare inert gases, is transmitted without difficulty.

The Vincent Rare Gas Relay may be used on magneto or common battery lines. Over 100,000 in daily use! Write for details.

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to include in every discussion, every conference, every statement dealing with any subject, some mention and consideration to pleasing service. It all adds up to a mighty determination by every person in the business, that the courtesy and friendliness of telephone operators shall continue to be regarded as a modern wonder, and that telephone users everywhere shall continue to experience the pleasure of dealing with operators who have the "soft voice and gentle manner."

Even with the rapid progress in extending dial operation, there will still be millions of calls every day requiring the assistance of operators. These will be the type of calls offering special opportunities for impressing customers with the desire to give pleasing service to everyone. There can be no doubt about it, this will continue to be a controlling factor in the industry's reputation with the public and in the intangible values which its customers associate with telephone service in this country.

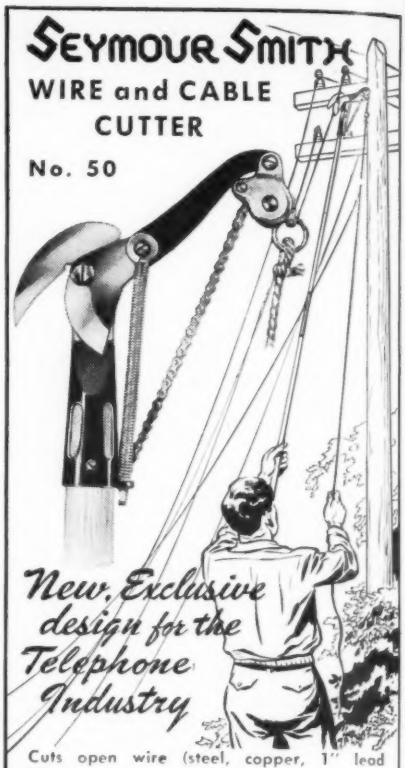
Small Office Is Important

(Continued from page 71)

It is planned that our six district traffic supervisors will visit these 105 tributary offices at least twice each year. It is further planned that the toll center chief operators will visit their tributaries and the tributary chief operators will be invited to visit the toll centers; in fact, we will encourage them to drop in often. By this means, the toll center and tributary personnel will become acquainted. They will be somewhat familiar with the equipment in the others' offices, have some idea of the problems each encounters and feel freer to call for advice or instruction on the part of the tributary and to offer assistance—or ask for it on the part of the toll center.

One of the main obstacles to better relations between toll center and tributaries is that they have never gotten acquainted. The toll center thinks the tributary is uncooperative and the tributary thinks the toll center is trying to push her around just because she is a large office. Tributaries that have a source of information and instruction can do every bit as good a job of operating within the scope of her office as the toll centers can. The toll center doesn't intend to appear superior but she takes the knowledge and skill she has acquired for granted and

SEYMOUR SMITH
WIRE and CABLE CUTTER
No. 50



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Cuts open wire (steel, copper, 1" lead cable), storm damaged lines. Demolition work. No climbing. Tempered steel blade. Notch holds wire. Mounts on jointed Seymour Smith Tree Pruner Poles. Already standard with large phone companies. No. 50 List Price $13.00 ea.

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SAFE
CONVENIENT
LIGHT WEIGHT
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STRIPS CABLE
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YOU CAN NOW GET SAFER AND FASTER CABLE STRIPPING WITH THE NEW **TACA** MAGIC CABLE STRIPPERS AND PARALLEL WIRE SLITTERS ON THE JOB.

COMPARE THE MANY ADVANTAGES YOU GET ONLY IN A **TACA**. THERE ARE SEVERAL DIFFERENT MODELS FROM WHICH TO CHOOSE.

YOU'LL FIND A **TACA** STRIPPER TO FIT YOUR EXACT STRIPPING REQUIREMENTS. THE **TACA** MAGIC CABLE STRIPPERS ARE DESIGNED AND ENGINEERED FOR LONG LIFE AND TROUBLE-FREE OPERATION. NO OBLIGATION FOR A DEMONSTRATION.

WRITE NOW

TACA COMPANY
MANUFACTURERS OF
The Magic Cable Stripper
4307 Raynol Street
Los Angeles 32, California

is impatient with those who don't have it.

We propose to do a little training on both sides to bring about effective collaboration between toll centers and tributaries in order to move both tributary and toll center toll traffic on a more efficient basis.

Yes, the small office is important. It is important to the people of the community it serves; it is important to us who operate it; it is a vital link in the telephone system of this whole nation. Let us then treat it as important—create a sense of pride and a spirit of service in our exchange people by training, by attention to their needs, and by a greater understanding of their problems.

Toll Line Traffic Engineering

(Continued from page 80)

that a toll circuit group of three overflows when it is 80.6 per cent in use. Therefore, our *plug count* has indicated that this toll group is in need of attention. It will be seen that the *plug count* furnishes a fairly simple method of checking on toll circuit performance.

Sample of a typical plug count form is attached.

And now in closing, it would be well to summarize. Toll circuit requirements are found by measuring the *busy hour minutes* on present and future loads on our toll group. *Busy hour minutes* are found by multiplying the *average business day messages* by the *average holding time* and by the *percentage of the day's toll traffic* falling in the *busy hour*. *Busy hour minutes* are referred to the *toll trunk tables* to determine the corresponding circuit requirements for the *trunk speed* and quality of service desired. It is also well to remember that in many cases, and particularly where toll circuit groups carry 200 messages per day or less, *toll busy hour minutes* are equal to 90 per cent of the *average business day messages*, and that where the product of the *average holding time* and the *per cent busy hour toll* is unity, the *busy hour minutes* equals the *average business day messages*.

Toll circuit availability is only one of several factors affecting the quality of toll service. Adequacy of operator force schedules, methods of obtaining directory and routing information, methods of toll board operation, are among the traffic factors influencing quality of service. Other matters such as tributary operation, toll central of-

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NEW DICKE POLE TAMPER

IN AUGER-DRILLED HOLES

Poles set in auger-drilled holes with the new Dicke Pole Tamper have more resistance to strain than poles set by ordinary methods. Spade-shaped tamping head of forged steel is concave for close-in tamping around base. Handle available in two lengths, 8 feet and 10 feet. Your lineman can set every pole solid with the new Dicke Pole Tamper.

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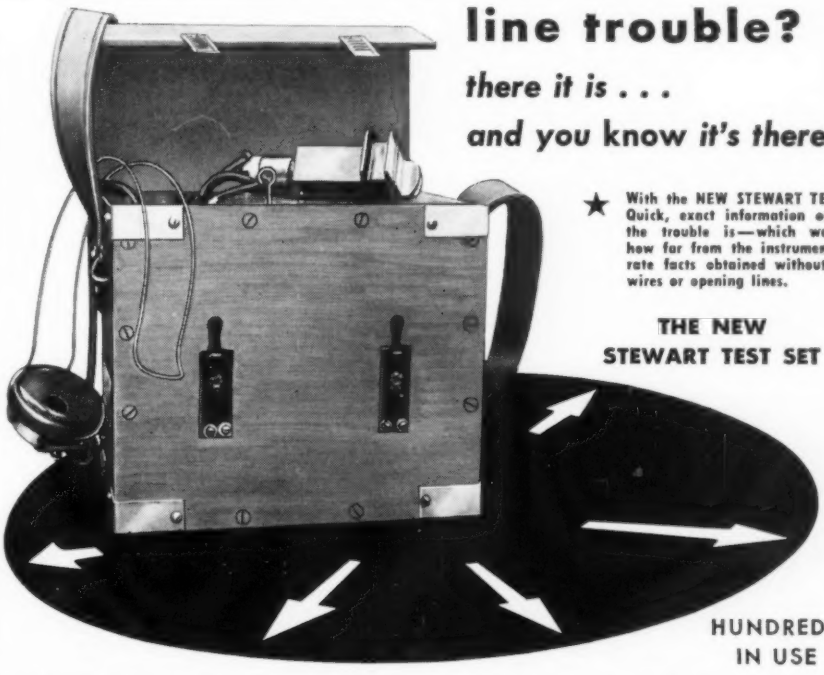

line trouble?

there it is . . .

and you know it's there!

★ With the NEW STEWART TEST SET. Quick, exact information on where the trouble is—which way—and how far from the instrument. Accurate facts obtained without cutting wires or opening lines.

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The NEW STEWART TEST SET is handy, convenient to work with, and absolutely practical. To get direction of trouble you use headphones, which transmit a ringing when detector coil is on the wire carrying current to trouble. When the direction is certain, you switch to the lamp for exact distance, as the lamp burns brighter, the closer you are to the trouble. Detector coil can easily be slipped into place even over insulated wire.

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fice equipment limitations, and station and party answering delays also govern service quality. Another factor of considerable importance is operator's attention to disconnect signals.

In these days of inexpensive and efficient carrier telephone systems it is quite easy to bring about quick circuit relief when toll circuits become overloaded. Carrier telephone systems quite often enable us to establish communication channels at less cost than by the conventional wire or cable method. These systems are available in many types to fit different plant and traffic requirements. They can be easily moved from location to location as traffic demands vary. As long as we can locate available carrier positions upon which to install these carrier telephone systems, our toll line traffic engineering problem is further simplified with the result that we do not have to rely on such a long range engineering program as formerly. By means of carrier telephone systems we can quickly move to meet changing toll traffic conditions.

Our committee chairman, C. C. Donley, has given this matter of practical application of telephone carrier systems very able and complete coverage in his paper presented at the plant conference of this convention.

Also in closing, brief mention should be made of the most important factor which applies in toll line engineering and as a matter of fact, in all telephone engineering. That factor is the *judgment factor*. After all of the measurement are made, the results should always be carefully weighed in the light of practical experience. The figures never lie but very often they are incomplete. Most of us in the Independent industry have been on the job for many years. The weight of the experience of those years should enter all of our decisions and there is no exception when it comes to engineering toll circuits. Those of us who have a good big crystal ball handy will find that it is also a great help in determining what is going to happen to our toll business in the future.

I know that there are experts in the audience and among the readers of this paper when it is published, who are familiar with the full classical treatment of toll line traffic engineering problems. They will observe that this paper is full of many practical assumptions in an attempt to simplify a process which can be quite lengthy and complicated. I hope that they will understand that this paper only attempts to point out a procedure which can be used by the average Independent telephone company for determining circuit adequacy of its small toll groups. I do hope that this paper will meet that objective.

V V

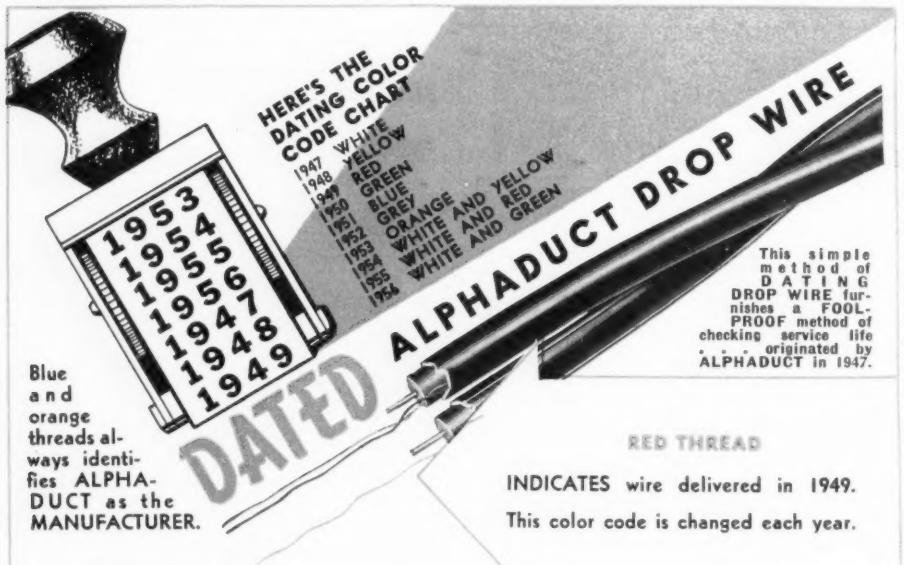
Nebraska Association Holds Two Regional Meetings

Two regional meetings of the Nebraska Telephone Association were held in the latter part of September, under the supervision of George M. Kloidy, secretary. At Holdrege there were 30 registrants, representing 16 companies and at Wisner 28, representing 12 companies.

Although speeches on the labor situation by Secretary Kloidy and Keith Vogt, chief accountant of the Nebraska Railway Commission, were made at both meetings, the programs consisted largely of round table discussions in which practically all present participated.

Most companies reported substantial increases in the number of subscribers and improvement of service on a wide scale, with magneto service being gradually replaced by common battery or dial.

Mr. Vogt gave a review of various rate cases which have been acted upon by the Nebraska commission, pointing out that the commissioners have generally granted a 6.5 per cent return as fair and in the public interest as well as compensatory to the utilities. He also discussed the effect on Ne-



Ray Blain, TELEPHONY's technical editor, wrote in his Plant Man's note book, TELEPHONY May 21 issue: "The maintenance of accurate service records of individual drop wire installations in the average exchange proves a most difficult task.

This difficulty has been largely overcome by the design of DATED DROP WIRE that is now being sold by at least one manufacturer.

In our opinion, this arrangement represents real progress in the simplification of accurate plant records."

You can eliminate forever costly record keeping. This revolutionary method of DATING DROP WIRE is a daring challenge to all quality claims and is your assurance of the manufacturer's confidence and willingness to have you check his product against all competition.

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braska companies of the wage and hour bill as proposed in Congress.

Mr. Kloidy, in discussing that bill, pointed out that while all the companies will be affected to a certain extent because of their toll interconnections, it is not yet known how many of their exchanges will come under the bill, since the exemption figure has been set at a different number by the House and by the Senate. He said that some of the troubles of company managers will arise out of the resulting different wage scales in their exchanges, which will create dissatisfaction among employes in the lower paid groups.

At the Wisner meeting, H. D. Thompson stressed the importance of letting subscribers know what it costs to give service. This is particularly important in the field of rural service, he emphasized. Farmers need to be told what it costs to give them service, Mr. Thompson stressed, citing the fact that at his two exchanges last year the company operated with a loss of $1.94 a farm station, largely caused by sleet storms, which form one of the principal hazards of rural service.

V V

Central Employe Magazine Memorial to R. A. Phillips

The entire September issue of *Public Service*, employe magazine of the Central Telephone Co. and Central Electric & Gas Co., was dedicated as a memorial to the late R. A. Phillips. Mr. Phillips, who passed away in August, was president and general manager of Central Telephone Co. and vice president and general manager of Central Electric & Gas Co.

The publication contained photographs of Mr. Phillips taken during his long and successful utility career. Also included were excerpts of addresses he had delivered before conventions and civic groups, as well as letters from leaders of the utility industries and statements from officers of the Central organizations, paying tribute to Mr. Phillips and his many accomplishments.

V V

Industry Now Has 40 Million Telephones in Service

The telephone industry has just passed the 40 millionth milestone in telephones served in this country. The 40,000,000 figure is just about double what it was 10 years ago.

Of the 40 million telephones, about 32,900,000 are served by the Bell System companies and 7,100,000 by Independent companies. Twenty-seven of the 40,000,000 are residence telephones and the remainder are used by business. Sixty-three per cent of the families in the United States have telephones.

The new total includes a record-

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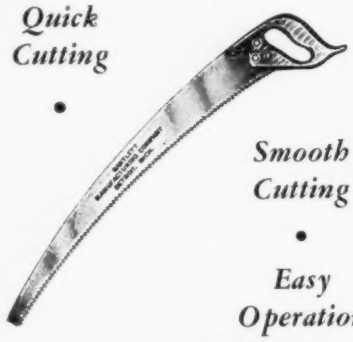

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breaking gain of nearly 13 million telephones in the four years since V-J day. This postwar growth exceeds the total number of telephones attained in the first 43 years after the telephone's invention by Alexander Graham Bell.

Investment in telephone plant and equipment now exceeds $10 billion, an increase of $4 billion since the end of the war.

Telephone conversations now average over 160 million a day, compared with the 1945 daily average of 111 million.

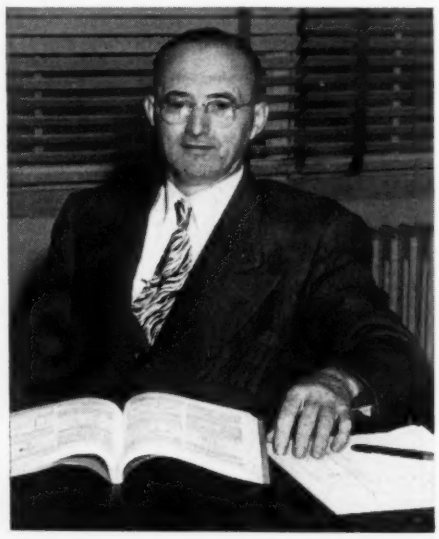
The United States, with an average of better than one telephone for every four persons, has nearly 60 per cent of the world's total. For the rest of the world, there is only one telephone for every 80 persons.

V V

Jewett Receives IRI 1950 Medal

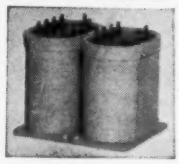
Dr. Frank B. Jewett, for many years vice president of the American Telephone & Telegraph Co. and former president of the National Academy of Sciences, on Oct. 12 was named to receive the 1950 medal of the Industrial Research Institute, Inc.

The medal, established in 1945, is awarded annually for "outstanding accomplishment in leadership or management of industrial research which contributes broadly to the development of industry or the public welfare."



JOHN I. BELLAMY, recently appointed head of the patent department of Kellogg Switchboard & Supply Co. to succeed C. P. Soper. In the Oct. 8 issue we inadvertently published Mr. Soper's name below Mr. Bellamy's photograph.

BETTER SIGNALS



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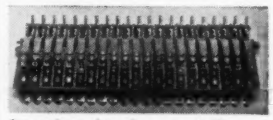
RINGING CONVERTER, Kellogg No. 41 pole-changer; operates from 24 volt battery; double-winding transformer; in fine oak case with hinged glass cover to give clear view of working parts. In original crates, with instructions and diagram $24.95



CENTRAL OFFICE PROTECTOR, Auto. Elect. Co. No. D67545A, 21 per strip, complete with heat coils & carbon blocks; wt. 8 lbs.....$19.95

PORTABLE TELEPHONE EE-8 for local or common-battery lines; with handset, ringer, generator, etc. Ideal for test set, farm 'phone, private line, extensions. Operates from 2 flashlite batteries. Used, good. Each set tested before shipment $9.95

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